

3 1761 11891809 3

CA20N DG
-75C64

Government
Publications

The Critique Juncture



Realization of the
Educational and
Career Intentions
of Grade 12
Students in Ontario.

Paul Anisef, Ph.D.
York University
Department of Sociology
and Anthropology

CA20N DG

- 75C64

Government
Publications

THE CRITICAL JUNCTURE

Realization
of the
Educational and Career Intentions
of Grade 12 Students
in Ontario

Paul Anisef Ph.D.
York University
Department of Sociology
and Anthropology

Errata

Several errors have been identified in both our first and second reports. The corrections are as follows:-

A. The Critical Juncture, Preliminary Survey, November, 1973

- (i) P. 92, line 4: (4.0%) not (40%)

B. The Critical Juncture, Follow-up Survey, December, 1974

- (i) The preliminary draft of the design report was inadvertently included in the appendix. The present design report includes the methodologies employed in the complete series of surveys.
- (ii) P. 120: The last sentence is incomplete. It should read, "For example, 54.2% originally claimed they would continue on to Grade 13 and we discovered that 53.2% actually entered Grade 13."



Digitized by the Internet Archive
in 2024 with funding from
University of Toronto

<https://archive.org/details/31761118918093>

PREFACE

The initial survey in the Spring of 1973, and the follow-up surveys in November 1973 and November 1974, were carried forward under the auspices of the Ministry of Colleges and Universities in Ontario. The Survey Research Centre of York University deserves a special note of gratitude for its able implementation of the three projects. Mr. Oleh Iwanyshyn wrote the methodological appendices for all three reports and should be congratulated for his diligence and competence.

Mr. Lance Mitson was my research assistant and aided me in analyzing the follow-up data for Phase Three. I would like to thank Lance for his efficient assistance and capacity for focusing attention on analysis problems. Mr. Peter Lewycky of the Ministry also deserves a note of thanks for his close scrutiny of my draft report. Ms. Alison Hegarty, also of the Ministry, was continually helpful and efficient in her role as project co-ordinator. Mrs. Audrey Robinson continues to earn my gratitude in that she has helped enormously in the typing of this manuscript.

The primary credit for such helpful information that may be contained in this study is directly attributed to the enthusiasm and co-operation of the high school staff and students, who generously volunteered their time and thought in providing research data. We hope that the results reported will prove interesting and profitable to them.

Although this study is being published under the auspices of the Ministry of Colleges and Universities, the views expressed are solely those of the author.

Paul Anisef
Associate Professor
York University

September 1975

TABLE OF CONTENTS

	Page
INTRODUCTION	1
The Problem	1
Objectives of this Report	3
Source of the Data	4
Analysis of the Data	5
Organization of the Report	6
 Chapter One	
CHANGES IN EDUCATIONAL AND VOCATIONAL OBJECTIVES: decisions and behaviours	8
Representivity of the Phase Three Sample	9
Present activities of former Grade 12 students	10
 Chapter Two	
ANALYSIS AND CLASSIFICATION: the utility of Panel Surveys	19
Introduction to Discriminant Analysis	20
Analysis	21
Classification	25
 Chapter Three	
A DESCRIPTION OF GRADE 12 STUDENTS ONE AND A HALF YEARS LATER	35
Description of respondents	37
Sociological/Demographic description	38
Social-psychological description	39
Description of full-time working respondents	41
Description of respondents attending university or community colleges	43
Occupational classification	45
Parents' occupations	45
Occupational expectations and aspirations of Phase One respondents	46
Present occupational experiences of Phase Three respon- dents and occupational expectations of university and CAAT students	48

	Page
Chapter Four	
A PROFILE OF CONSISTENTS AND INCONSISTENTS	69
Operational definition of consistency	70
I. Discriminant analysis of consistency	71
II. Cross-tabulations of consistency and discriminating variables	74
Chapter Five	
SUMMARY AND CONCLUSIONS	84
Summary	84
Objectives of second follow-up report	84
Source of the data	85
Changes in Educational and Vocational Objectives: decisions and behaviours	86
Analysis and Classification: the utility of panel surveys	87
A description of Grade 12 students: one and a half years later	89
General description of all groups	89
Working respondents	90
University and community college respondents	91
Occupational classification of parents and respondents	92
A profile of consistents and inconsistent	93
Conclusions	95

LIST OF TABLES

Table

1.1 Percentages, Confidence Intervals and Confidence Limits for Sex of Adolescents - Phase One and Phase Three Comparison	14
1.2 Percentages, Confidence Intervals and Confidence Limits for Family Income - Phase One and Phase Three Comparison of Adolescents	15
1.3 Percentages, Confidence Intervals and Confidence Limits for Father's Occupational Prestige - Phase One and Phase Three Comparison of Adolescents	16

Table	Page
1.4 Percentages, Confidence Intervals and Confidence Limits for Present Educational/Vocational Activities of Adolescents in November 1973 (Phase Three Survey)	18
1.5 Cross-over Table Relating Educational and Vocational Expectations of Adolescents in Spring 1973 and their Behavior in Fall 1974	19
2.1 Discriminating Power of Discriminant Functions for Educational, Vocational and Alternate Choice Classes	29
2.2 Standardized Discriminant Function Coefficients	30
2.3 Centroids of Groups in Reduced Space	31
2.4 Classification Results for Educational, Vocational and Alternate Choice Classes - Direct Solution	33
2.5 Classification Results for Educational Vocational and Alternate Choice Classes - Bayesian Solution	34
3.1 Activity in Fall 1974 and Perception of How Well High School Prepared Respondent for this Activity	51
3.2 Activity in Fall, 1974 and Sex	52
3.3 Activity in Fall 1974 and Grades	52
3.4 Activity in Fall 1974 and Father's Education	53
3.5 Activity in Fall 1974 and Friends in Community College	53
3.6 Activity in Fall 1974 and Friends in University	54
3.7 Activity in Fall 1974 and Friends Working	54
3.8 Activity in Fall 1974 and Parental Expectations	55
3.9 Activity in Fall 1974 and Father's Encouragement	55
3.10 Activity in Fall 1974 and Mother's Encouragement	56
3.11 Activity in Fall 1974 and Ability to Graduate from University	56
3.12 Activity in Fall 1974 and Ability to Graduate from Community College	57

Table	Page
3.13 Activity in Fall 1974 and Importance of Being Better Able to Understand Ideas as Reason for Pursuing Higher Education	57
3.14a Reasons for Working Full-time	58
3.14b Trouble Finding a Job	58
3.14c Hours Worked Per Week	58
3.14d Type of Work in Terms of Occupational Prestige	59
3.14e Satisfaction Associated with Job	59
3.15a Percentages of University and Community College Students Attending Specific Institutions of Higher Learning in Ontario	60
3.15b Reasons for Attending University or Community College	61
3.15c Number of Credit Courses Enrolled In	61
3.15d Major Source of Finances	62
3.15e Major Pressure in Completing Studies	62
3.15f Extent to which Students are Bothered by Major Pressure	63
3.15g Type of Work Expected in Terms of Occupational Prestige - after Completion of Studies	63
3.16a Fathers' and Mothers' Occupation: Statistics Canada Classification	64
3.16b Occupational Expectations of Phase One Respondents By Sex: Statistics Canada Classification	65
3.16c Occupational Aspirations of Phase One Respondents By Sex: Statistics Canada Classification	66
3.16d Present Job Activities of Full-time Working Respondents in Phase Three: Statistics Canada Classification	67
3.16e Occupational Expectation of Phase One Respondents Attending University and Community College: Statistics Canada Classification	68

Table	Page
4.1a Discriminating Power of Discriminant Functions for Consistency-inconsistency Classes (Phase 1 - Phase 3)	78
4.1b Discriminating Power of Discriminant Functions for Consistency-inconsistency Classes (Phase 2 - Phase 3)	78
4.2 Standardized Discriminant Function Coefficients for Phase 1 - Phase 3 and Phase 2 - Phase 3	79
4.3 Consistency and Sex	80
4.4 Consistency and Grades	80
4.5 Consistency and Father's Education	81
4.6 Consistency and Friends in Community College	81
4.7 Consistency and Friends in University	82
4.8 Consistency and Friends Working	82
4.9 Consistency and Parental Expectations	83
4.10 Consistency and Ability to Graduate from University	83

LIST OF FIGURES

Figure	
2.1 Centroids of groups in discriminant plane	32
3.1 Rank Order of Variables on First Discriminant Function	50

LIST OF APPENDICES

Appendix	
I Sample design	
II Questionnaire	
III Decision Rules for Classification of Present Activity	

INTRODUCTION

The Problem

In the Spring of 1973 we conducted a survey of Grade 12 students in Ontario. Our objectives were fairly straightforward: we simply sought to develop profiles of adolescents who appeared to possess different types of plans.¹ The profiles developed in this first phase of the survey did indicate marked differences. Those students who planned to enroll in universities at some future date tended to be male, rank high on social class background, come from urban areas in Ontario, believe they possessed the ability to graduate from university (and had the grades to back up this claim). They also possessed higher occupational aspirations than students with other types of intentions. Thus, it seemed valid to say that adolescents define their situations not in some arbitrary manner but in terms of their social origins, place of residence, experiences and performance in high school.

A decision was made to continue the survey so that we could further expand and clarify the rough profiles we had developed. Moreover, we knew that a panel survey would afford us an opportunity for evaluating the validity of an "intentions" survey. Although we were cognizant of the possibility that any number of factors might lead to discrepancies

¹ Paul Anisef, The Critical Juncture, Educational and Vocational Intentions of Grade 12 Students in Ontario. (preliminary study), Ministry of Colleges and Universities, 1973.

between an individual's stated intentions and actual behaviour, no panel survey had been implemented in Ontario that focused on this particular problem. This problem was explored in a follow-up telephone survey in November 1973. We discovered, at that stage, that an intentions survey is relatively good for forecasting aggregate behaviour but a relatively poor means of predicting individual behaviour. Within six months, 22.3% of Phase Two respondents were participating in activities that differed from the plans they voiced in Spring 1973.² Although nearly a quarter of all individuals in the Phase Two survey altered their decisions, there were minimal aggregate differences with respect to the proportions entering Grade 13 or Colleges of Applied Arts and Technology.

An intriguing question also arose after we found that more than a fifth of all respondents behaved in a manner that was essentially inconsistent with what they reported to us in Spring 1973. Are adolescents who act in accord with originally stated intentions different than "inconsistent" adolescents? Our analysis revealed that there were differences in that the former, consistent, group were more likely to: (1) Come from urban areas of Ontario (2) Be in smaller families where they are positioned at the low end of the ordinal structure (that is, more likely to be first born in the family) (3) Have more prestigious socio-economic origins (4) Receive greater encouragement to continue higher studies (5) Achieve higher grade point averages and possess more favorable self-evaluations concerning their abilities (6) Possess

² Paul Anisef, The Critical Juncture, Follow-up Survey, Educational and Vocational Intentions of Grade 12 students in Ontario, 1974, p. 120.

greater expectations and aspirations concerning their future occupational roles.

Objectives of this Report

The same Grade 12 students who responded both to our questionnaire in Spring 1973 and our telephone survey six months later were again contacted in November 1974. Respondents who were grade 12 students in 1973 are now, for the largest part, either studying, part-time or full-time in universities or CAATs and/or working in part-time or full-time positions.

We have several objectives in this report. In our first report, we developed profiles of respondents based on their stated intentions. Now we may develop profiles founded on the choices these same respondents have actually made. At the same time, we can further identify the important factors that figure in the decision-making processes of adolescents who chose from a complex variety of educational and vocational alternatives. We may also continue to probe the viable usage of an intentions survey for predicting aggregate behaviours. In other words, how well did adolescent's stated plans in Spring 1973 predict their educational and vocational activities in November 1974? Moreover, can we develop a classification scheme (employing social and social-psychological information) that will adequately predict behaviour at the individual level? If, for instance, we know X, Y and Z concerning an individual can we offer more than intelligent guesses as to what persons will do at some future time?

In our second report we began to explore the social and social-psychological differences between respondents who are either consistent or inconsistent in terms of their revealed plans. We will continue, in this report, to analyze these differences. At the end of our report we will develop a number of recommendations; these recommendations will concern how policy makers and educational institutions can employ an intentions survey of this sort for practical purposes.

Source of the Data

Trained interviewers of the Survey Research Centre at York University placed telephone calls to all respondents in the Spring 1973 survey. These interviewers were trained to ask a number of questions that pertained to present activities. This process was co-ordinated by a field supervisor employed by the Survey Research Centre. Several steps were taken to optimize the response rate.³ Thus, after 4 unsuccessful attempts to reach a respondent by telephone, a questionnaire was mailed. In addition, and when possible, proxy information was collected. From the original group of 2,555 Phase One respondents, a total of 2,163 responded to Phase Three - a response rate of 84.7%. If Phase Two is used as a comparative base the response rate is 92%, indicating that our optimizing procedures were highly successful. In fact, the overall response rate over all three phases is nearly 70%.

³ See the methodological appendix attached to the report for a detailed accounting of the technique employed.

Analysis of the Data

The analysis is based solely on information obtained from the 1,987 people who responded to all three phases of our panel survey. In Chapter One we shall demonstrate that the 568 non-respondents do not have a significant effect upon the distribution of responses on criteria salient to the report. This documentation is essential for generalizing findings to the larger population; that is, all the people who were Grade 12 students in Ontario in 1973.

Cross-tabulations are based on a weighted sample of 92,734. This weighted sample approximates the target population in Fall 1974 and permits the analyst to adjust for errors or deviations from the sample to the population (see Appendix I for a fuller and more detailed explanation of this procedure).

Unless otherwise specified, most cross-tabulation tables that appear at the end of each chapter contain the following information:

- (1) The cells in each table contain row percentages and each row percentage will equal 100%.
- (2) For each row of a table we provide the number of respondents (weighted) located in that row and its proportion of the total number of respondents (weighted) to which the table applies. This information appears in the last column of each table.
- (3) For each column of a table we provide the number of respondents (weighted) located in that column and its proportion of the total number of respondents (weighted) to which the table applies. This information appears in the last row of each table.

Organization of the Report

The first chapter documents the representivity of the second follow-up of the Phase Three sample and examines the extent of change between stated intentions in Spring 1973 and actual behaviour as identified in Fall 1974.

The second chapter introduces discriminant analysis as a method for classifying respondents by their future educational and vocational behaviour. In this chapter we explore some of the assumptions made in employing this powerful technique and demonstrate its potential viability in aiding us to make individual predictions.

The third chapter consists of a profile of grade 12 students (one and a half years later) in terms of their social, demographic and social-psychological characteristics. There follows, then, an analysis of specific groups (that is, respondents who are presently working full-time or full-time students). Also included is an analysis of principal sources of support employed by students currently enrolled in universities and CAAT. In addition, we offer an occupational analysis of Phase Three respondents in terms of a Statistics Canada Occupational Classification. The analysis consists of separate considerations of males and females.

Our fourth chapter continues the analysis initiated in the Second Phase of the panel survey; that is, an attempt to compare people who are either consistent or inconsistent with reference to their initially formulated plans and subsequent behaviour. The major differences (e.g., social origin, high school experiences) between "consistents" and "inconsistents" are identified in this chapter; consistency itself is

defined by the congruency between an adolescent's stated intentions in Spring 1973 and his actual behaviour when questioned in November 1974.

In our final chapter we summarize the highlights of preceding chapters and ask how effective we've been in obtaining the objectives that formed the basis of our panel survey. What is, or can be, the practical utility of an intentions survey such as we've conducted for the last few years? Also what more can, or should be, accomplished which will effectively serve both the needs of various public and educational decision-makers?

Three appendices are attached to the report. Appendix I consists of a detailed discussion of the methodology employed in all three surveys. It is written by Mr. Oleh Iwanyshyn of the Survey Research Centre, York University. Appendix II contains the questions asked in the telephone survey of November 1974. Appendix III presents the decision rules for the classification of present activity.

CHAPTER ONE

Changes in Educational and Vocational Objectives: decisions and behaviours

The major objective of this initial chapter is to report and analyze the extent and nature of changes that have occurred in the educational and vocational plans of Grade 12 students since the Spring of 1973. At that time Grade 12 students in Ontario furnished information concerning their educational plans and intentions for the Fall of 1973 and 1974. In November 1973, we again questioned these same adolescents and identified both their current activities and their plans for the Fall of 1974. This constituted Phase Two of our survey.

One year later, we attempted to contact as many respondents as possible from the Phase One sample. By this time, most adolescents who were formerly Grade 12 students had either enrolled in university or community colleges, entered work roles, decided on part-time studies or selected some alternate pathway. Obviously, Phase Three of the survey becomes crucially important in ascertaining the extent and nature of changes that occurred in the year-and-a-half interval between initial planning and the implementation of these intentions. Our data provides us with an opportunity to analyze shifts at the individual and aggregate level and measure the congruence of plans and present activity.¹

¹ Chapter Two contains the operational definition employed in classifying the plans and activities of respondents in Spring 1973 and Fall 1974.

From the original group of 2,555 Phase One respondents, a total of 2,163 responded to Phase Three -- a response rate of 84.7%. Of the 2,163 completions, 176 had not responded in Phase Two. Therefore, the effective number of respondents is 1,987.

An important question then arises: How representative is the follow-up sample of the original target population? If non-respondents in our Phase Three sample are markedly different than respondents, our freedom in generalizing the target population of 1973-1974 Grade 12 students in Ontario becomes limited. If the Phase Three sample is, in fact, representative of the original target population, our confidence in generalizing our findings with respect to the target population is increased.

Representivity of the Phase Three Sample

Three variables are employed in testing the representivity of the Phase Three sample -- the sex of respondent, his/her family income and the occupational prestige of his/her father.² These three variables were selected in testing representivity because they are germane to the general objectives of the overall survey.³

An examination of the confidence limits for Phase One and Phase

² The same variables (except activities in the Fall of 1973) were employed in testing the representivity of our Phase Two sample.

³ Paul Anisef, The Critical Juncture, vol. 2, p. 9.

Three comparisons (employing sex, family income and father's occupational prestige) reveals that the value ranges overlap in each instance (Table 1.1 - Table 1.3). For example, the confidence limits for males in Phase One is 48.1 - 50.3, while in Phase Three it is 46.9 - 50.7. The range of values on sex of respondents thus overlap. An inspection of confidence limits with respect to each level of family income and father's occupational prestige should reveal that ranges of values overlap in each instance. This indicates that we have every reason to believe that both samples are, in point of fact, drawn from an identical target population because they closely resemble each other on variables selected to test representivity. Thus, adolescents who did not respond to Phase Three would appear to have an insignificant effect on the response distributions of a number of relevant criteria, in that the confidence limits overlap.⁴ Therefore, we may generalize our findings (based on the Phase Three survey) to the original target population.

Present activities of former Grade 12 students

Since the Spring of 1973, adolescents who were then in Grade 12 have chosen a variety of educational and vocational alternatives. Table 1.4 presents the percentages, confidence intervals and confidence limits for the current activities of these adolescents. By inspecting the confidence limits in Table 1.4, we may learn something concerning the range of values within which the population mean is likely to fall.

⁴ Recall that our representivity test is conservative since we have treated 175 respondents as non-respondents because they did not respond in Phase Two.

Assume, therefore, that one would like to learn what proportion of adolescents in Ontario⁵, in Fall 1974, were employed full-time, attending university, etc. We may, for instance, state that there is a 95% probability that the population mean (with reference to those working full-time) falls within the range of the sample mean, 37.8% plus or minus 3.0%; the range, therefore, is 34.8% - 40.8%. Similarly, we have 95% confidence that between 27.8% - 35.2% of former Grade 12 students were enrolled in University in Fall 1974. From Table 1.4, it is clear that the precision with which population means may be estimated depends on the nature of the activity. Thus, the variation about the population mean for respondents who pursued part-time studies is 0.6%. However, the variation is more than six times larger, 3.7%, when full-time university respondents are considered.

Changes in educational and vocational intentions

A number of interesting facts emerge when individual and aggregate changes are analyzed. These changes refer to our comparison of Phase One respondents' intentions (Spring 1973) with their activities in Fall 1974. Table 1.5 is a cross-over table which enables us to clearly identify both individual and aggregate changes over a period of time.⁶

⁵ This does not refer to all adolescents in Ontario. It refers only to those adolescents who were in Grade 12 in Spring 1973.

⁶ Note that the marginal percentages in Table 1.5 differ from those in Table 1.4. These differences are attributable to the alterations that occur when "don't knows" (Spring 1973) are eliminated from the table.

Thus, while only slightly more than 20% of the respondents planned on entering the work force in Fall 1974, almost 40% of the respondents actually assumed full-time work roles. The 17.5% aggregate discrepancy cannot be attributed to the instability of those respondents who told us about their work plans. Only 3.5% altered their decision. Of all respondents who selected work roles in Fall 1974, 21.0% had originally planned on alternate activities (e.g., attending university or community college, etc.).

The percentage discrepancy at the aggregate or group level between those who planned on attending university and who actually enrolled is only 2.3%. In other words, while 37.6% planned on enrolling in university 35.3% were attending in Fall 1974. Of the 37.6% who planned on enrolling, 27.8% actually enrolled; 4.0% changed their minds and took jobs and 2.8% decided to attend a community college. Thus, while the aggregate or group percentages do not alter much over a period of time, there is considerable change at the individual level.

In Spring 1973, 22.0% stated they would enroll in CAATs in Fall 1974, but one-and-a-half years later, only 14.4% were attending community colleges - a discrepancy of 7.6%. Of the respondents who planned on entering CAATs, 6.4% changed their minds and took full-time jobs and a further 3.1% decided on attending university rather than community college. But we should also note that of the 14.4% who attended CAATs in Fall 1974, 2.8% had originally opted for university.

Although 4.6% of respondents had initially informed us of their intention to study part-time, only 1.9% actually were doing this in

Fall 1974. In fact, only 0.2% of respondents declaring this intention in Spring 1973 were part-time students in Fall 1974. The majority of respondents who did not enroll decided to accept full-time jobs. Over half the respondents involved in part-time studies in Fall 1974 originally planned to attend either university or community college. Thus, virtually no one who plans on part-time studies eventually does so; most people who became involved in part-time studies did not tell us that they were considering this alternative.

Table 1.5 illustrates that, over a one-and-a-half year period, a good deal of change has occurred both at the aggregate and individual levels of analysis. At the aggregate level the percentage discrepancies for all choice categories (except attending university) are quite large. If forecasters were to depend largely on what people say they will do one-and-a-half years in the future, their overall accuracy would be predictably low.

If one wished to employ an intentions survey for predicting individual behaviour, comparable problems are encountered. More than 40% of the respondents were found, in Fall 1974, to be involved in activities different from those they chose in Spring 1973. However, in Chapter Two we employ other information gathered in our panel survey and demonstrate the potential viability of using such information in making individual level predictions. What we wish to emphasize here is that an individual's stated plans are not necessarily a reliable indicator of his/her subsequent actions.

Table 1.1: Percentages, Confidence Intervals and Confidence Limits
for Sex of Adolescents - Phase One and Phase Three Com-
parison.

Sex	Phase One		Phase Three	
	Percentages and Confidence Intervals	Confidence Limits ¹	Percentages and Confidence Intervals	Confidence Limits ¹
Male	49.2 ± 1.07	(48.1 -- 50.3)	48.8 ± 1.85	(46.9 -- 50.7)
Female	50.8 ± 1.04	(49.8 -- 51.8)	51.2 ± 1.85	(49.4 -- 53.1)

N = 2555

N = 1987

¹ A 95% confidence limit was employed; this means that there is a probability of 0.95 that the population mean lies within the range of ± 1.96 standard errors of the sample mean. Conversely, there is a 0.05 probability that the population mean lies outside (below or above) these limits.

Table 1.2: Percentages, Confidence Intervals and Confidence Limits for Family Income - Phase One and Phase Three Comparison of Adolescents

Family Income	Phase One		Phase Three	
	Percentages and Confidence Intervals	Confidence Limits ¹	Percentages and Confidence Intervals	Confidence Limits ¹
Below \$4,000	2.2 ± 0.55	(1.7 -- 2.8)	2.3 ± 0.73	(1.6 -- 3.0)
\$4,000 - 7,000	7.3 ± 3.05	(4.2 -- 10.3)	6.6 ± 3.56	(3.0 -- 10.2)
\$7,000 - 10,000	16.9 ± 1.03	(15.9 -- 18.9)	16.4 ± 0.59	(15.8 -- 17.0)
\$10,000 - 13,000	13.1 ± 2.32	(10.8 -- 15.4)	12.8 ± 1.73	(11.1 -- 14.5)
\$13,000 - 16,000	12.2 ± 1.68	(10.5 -- 13.9)	11.7 ± 1.73	(10.0 -- 13.4)
\$16,000 - 19,000	7.7 ± 2.02	(5.7 -- 9.7)	7.9 ± 2.00	(5.9 -- 9.9)
Above \$19,000	11.2 ± 2.46	(8.7 -- 13.7)	11.7 ± 2.71	(9.0 -- 14.4)
Don't know	29.3 ± 3.28	(26.0 -- 32.6)	29.2 ± 2.03	(27.2 -- 31.2)

N = 2555

N = 1987

¹ A 95% confidence limit was employed; this means that there is a probability of 0.95 that the population mean lies within the range of ± 1.96 standard errors of the sample mean. Conversely, there is a 0.05 probability that the population mean lies outside (below or above) these limits.

Table 1.3: Percentages, Confidence Intervals and Confidence Limits for
 Father's Occupational Prestige - Phase One and Phase Three
 Comparison of Adolescents

Father's Occupational Prestige	Phase One		Phase Three	
	Percentages and Confidence Intervals	Confidence Limits ¹	Percentage and Confidence Intervals	Confidence Limits ¹
Blishen one	7.9 ± 1.66	(6.2 -- 9.6)	10.9 ± 1.51	(9.4 -- 12.4)
Blishen two	11.9 ± 3.17	(8.7 -- 15.1)	11.9 ± 3.09	(8.8 -- 15.0)
Blishen three	10.2 ± 2.85	(7.4 -- 13.1)	9.5 ± 2.53	(7.0 -- 12.0)
Blishen four	15.8 ± 1.46	(14.3 -- 17.3)	15.8 ± 2.02	(13.8 -- 17.8)
Blishen five	35.9 ± 3.57	(32.3 -- 39.5)	31.7 ± 2.81	(28.9 -- 34.5)
Blishen six	18.4 ± 4.67	(13.7 -- 23.1)	17.3 ± 3.64	(13.7 -- 20.9)
	N = 2555		N = 1987	

¹ A 95% confidence limit was employed; this means that there is a probability of 0.95 that the population mean lies within the range of ± 1.96 standard errors of the sample mean. Conversely, there is a 0.05 probability that the population mean lies outside (below or above) these limits.

Table 1.4: Percentages, Confidence Intervals and Confidence Limits for Present Educational/Vocational Activities of Adolescents in November 1973 (Phase Three Survey)

Educational/Vocational Activities - November 1973	Phase Three Survey	
	Percentages and Confidence Intervals ²	Confidence Limits ¹
Work full-time	37.8 ± 3.02	(34.8 -- 40.8)
Attend university	31.5 ± 3.72	(27.8 -- 35.2)
Attend community college	13.2 ± 2.82	(9.4 -- 16.0)
Part-time studies	1.6 ± 0.55	(1.1 -- 2.2)
Alternate Activities	9.5 ± 1.81	(7.7 -- 11.3)

unclassified (N = 128)

N = 1987

¹ A 95% confidence limit was employed; this means that there is a probability of 0.95 that the population mean lies within the range of ± 1.96 standard errors of the sample mean. Conversely, there is a 0.05 probability that the population mean lies outside (below or above) these limits.

² Note that percentages total 93.6; 6.4% of all cases were unclassifiable due to either missing, inconsistent or contradictory information supplied by respondents.

Table 1.5: Cross-over Table Relating Educational and Vocational Expectations of Adolescents in Spring 1973 and their Behaviors in Fall 1974

SPRING 1973	Fall 1974					
	Work Full-time	Attend University	Attend CAAT	Part-time Study	Alternate Activities	
Work Full-time	17.4	0.3	0.7	0.2	2.3	16273 20.9
Attend University	4.0	27.8	2.8	0.6	2.4	29242 37.6
Attend CAAT	6.4	3.1	9.3	0.4	2.8	17121 22.0
Part-time Study	2.5	0.8	0.6	0.2	0.5	3562 4.6
Alternate Activities	8.1	3.2	1.0	0.4	2.0	11510 14.8
	29856	27405	11174	1451	7822	77708
	38.4	35.3	14.4	1.9	10.1	100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but, missing observations result in a smaller total.

CHAPTER TWO

Analysis and Classification; the Utility of Panel Surveys

A major assumption which guides our thinking and analysis in this panel survey is that adolescents make rational choices and decisions. Their decisions are influenced, not so much by arbitrary and situational factors, but by collective definitions developed in specific although varied social environments.

One way to test the viability and utility of a panel survey involves an analysis of the predictive or classificatory capacity of the collected information. To what extent does social science information help us in predicting adolescents' future educational and vocational choices?

In this chapter we offer a method for analyzing and classifying the current behaviour of the respondents in our panel survey. This method is entitled "Discriminant Analysis," and represents a means for the interpretation of data and the classification of new cases with unknown memberships. Much of the discussion that follows will, necessarily, be of a highly technical nature. For the reader primarily interested in the "pay-offs" of "Discriminant Analysis" we recommend skipping this chapter and referring to our concluding remarks in Chapter Six.

Introduction to Discriminant Analysis:¹

Discriminant analysis begins with the objective of statistically distinguishing between two or more groups of cases. For our purposes there are five groups: Those who: work full-time; attend university full-time; attend CAATs full-time; take part-time studies; and finally, those who engage in alternate activities.

To distinguish between the groups, the researcher selects a collection of discriminating variables that ostensibly measure characteristics on which the groups are expected to differ. I selected and employed a total of twelve variables after preliminary analysis. These twelve variables are: Encouragement by mother to continue post-secondary studies; encouragement by father to continue post-secondary studies; the relative importance of understanding and appreciating ideas as a reason for continuing studies after high school graduation; perceived ability to graduate from university; perceived ability to graduate from a community college; grade average in grade eleven; sex; father's formal educational level; proportion of respondent's friends who are now in community college; proportion of respondent's friends who are now in community college; proportion of respondent's friends now in university; proportion of respondent's friends now working and respondent's perception of his parents' educational expectation.

The mathematical aim of discriminant analysis is to weight and linearly combine the variables in such a way that the groups are as

¹ Much of our discussion of discriminant analysis relies heavily on the discussion of William R. Klecka, "Discriminant Analysis" in Statistical Package for the Social Sciences, McGraw-Hill Book Company, 1975, pp. 434-448. For a more technical explanation of discriminant analysis and classification procedures see William W. Cooley and Paul R. Lohnes, Multivariate Data Analysis, John Wiley and Sons, Inc, 1971, Chaps. 9, 10.

statistically distinct as possible. For example, in distinguishing between Liberals and Conservatives in Ontario, we would select several issues, mathematically combine them, and hope to find a single dimension on which Liberals are clustered at one end while Conservatives are clustered at the other.

Discriminant analysis attempts to do this by forming one or more linear combinations of the discriminating variable. What results is called "Discriminant Functions." Once these functions are derived, we are able to pursue the two research objectives of the technique: analysis and classification.

Analysis

The analysis aspects of discriminant analysis provide several means for the interpretation of data. Thus, there are tests for measuring the effectiveness with which the discriminating variables actually discriminate when combined into the discriminant functions. When there are more than two groups (as is true in our own particular analysis), it is possible to achieve effective discrimination with fewer than the maximum number of functions. (The thinking here is similar to that in determining the number of factors in factor analysis). What results is often theoretically interesting and, therefore, statistical tests are included for this purpose.

Three statistics will be presented in our analysis for judging the importance of discriminant functions. One of these statistics is the

relative percentage of the eigenvalue associated with the function. The eigenvalue is a special measure computed in the process of deriving the discriminant functions. Thus, it is a measure of the relative importance of the function and the sum of the eigenvalues is a measure of the total variance existing in the discriminating variables.

A second statistic for judging the relative importance of a discriminant function is its associated canonical correlation. The canonical correlation is a measure of association between the single discriminant function and the set of $(g - 1)$ dummy variables which define g group memberships. It tells us how closely the function and the "group variable" are related; this is another measure of the function's ability to discriminate among groups. We may also interpret the canonical correlation squared as the proportion of variance in the discriminant function explained by the groups.

Wilks' Lambda provides an additional statistical measure for testing the significance of discriminatory information not already accounted for by earlier functions. Lambda is an inverse measure of the discriminating power of the original variables which has not yet been removed by the discriminant functions -- the larger the Lambda is, the less information remaining. Lambda can be transformed into a chi-square statistic so that an easy test of statistical significance is available.

Standardized discriminant function coefficients are also available in this analysis. These coefficients represent the relative contributions of the variables to the respective discriminant functions.

Since the discriminant functions can be thought of as the axis of geometric space, they can be used to study the spatial relationships among the groups. Group differences can be derived by plotting the group centroids. More specifically, group centroids refer to the mean discriminating scores for each group on the respective functions. The centroids summarize the group locations in the (reduced) space defined by the discriminant functions.

Table 2.1 reports the discriminating power of the derived discriminant functions for the five educational, vocational and alternate choice classes. These latter classes are based on the current activities of respondents in Phase Three (For a more detailed examination of how these classes are developed, see Chapter Three). Only those respondents who answered all three phases of the survey are included.

Four discriminant functions are derived. The first two are significant using a chi-square test of Wilk's Lambda coefficient. The third verges on significance and the fourth is non-significant. The 0.057 significance level associated with the third discriminant function, for example, means there is a 0.057 probability of the associated Lambda occurring due to random sampling fluctuations.

The first discriminant function is the most important one in that the relative percentage of the total eigenvalue associated with it, 88.69%, is very high. The third and fourth functions would appear to be relatively unimportant because only 2.82% of the total eigenvalue is associated with these functions. The canonical correlations associated

with the discriminant functions are another measure of the function's importance. We may note, again, the first function is the most important ($R_c = 0.684$) while the second function is of lesser importance ($R_c = 0.279$).

Table 2.2 presents the structure for the two most significant discriminant functions. The standardized discriminant function coefficients represent the relative contribution of the variables (selected by the researcher) to the discriminant function(s). The sign merely denotes whether the variable is either positively or negatively associated with the function(s). The interpretation is analogous to the interpretation of beta weights in multiple regression. For example, we see in Table 2.2 that "parent's educational expectations" is three times as important as "friends in the labour force", and that "friends in CAAT" and "sex" are of little importance in the first function. Furthermore, "ability to graduate from CAAT" makes its greatest contribution to the second function while "reason for education - understand ideas" contributes relatively little to either function. As in factor analysis, these coefficients can be used to "name" the functions by identifying the dominant characteristics that they measure. For instance, the first function reported in Table 2.2 predominantly contains "university-directed" and "educational expectations as specified by parents" emphasis while the second function is made up, to a large extent, of "work - CAAT directed" variables.

Further evidence about group differences can be derived from the group centroids and a plot of the cases. The group centroids are reported in Table 2.3. These are the mean discriminant scores for each group on the respective functions. The centroids summarize the group locations, but these are more easily visualized after plotting them on a graph defined by the first two discriminant functions. This has been done in Fig. 2.1. The points represent the group centroids and the numbers represent our five classes.

Fig. 2.1 would seem to indicate that, spatially, the classes "work full-time" and "attend university" are most distinct and separate. However, Fig. 2.1 also clearly indicates that "attend CAAT" and "alternate activities" intermingle quite closely. This means that the discriminating variables were not very successful in discriminating these two classes. Note too, that "attend CAAT" and "part-time study" are not very far apart.

Classification

We have now demonstrated the analytic uses of discriminant analysis, but it is also a classification technique. Classification, in this instance, means the process of identifying the likely group membership of a case when the only information known is the case's values on the discriminating variables. The adequacy of the derived discriminant functions can thus be tested by classifying the cases used to derive the functions in the first place. If we then compare predicted group membership with actual group membership, it is possible to empirically measure

the success in discrimination by observing the proportion of correct classifications.

There are several ways to achieve classification through the use of classification functions, one for each group. Some methods are based on the original values of the discriminant score. For some approaches, a Bayesian adjustment is made for a priori estimates of group membership. Table 2.4 represents a direct solution in which all independent variables are entered into the analysis concurrently. The discriminant functions are created directly from the entire set of independent variables, regardless of the discriminating power of each of the independent variables. For this table, no a priori assumptions regarding probabilities in group membership are made. In other words, the same probability is assigned each of the five classes ($p = 0.2$). Table 2.5 also represents a direct solution, but a Bayesian adjustment in terms of class size has been made. A Bayesian adjustment is often desirable when the costs of misclassification into certain groups are very high, when the groups are of grossly different sizes, or when one desires to take advantage of a priori knowledge of group membership probabilities.²

Note that in Tables 2.4 and 2.5 there are 128 ungrouped cases. This results from the fact that we were unable to classify all cases with the available information. In comparing these two tables, the classification routine was able to correctly identify only 48.63% of the cases as members of the groups to which they actually belong when a direct solution involving equal probabilities (in group memberships) was employed.

² For Table 2.5 adjustments are made on the basis of prior probabilities being proportioned to the number of cases in each group, i.e. cases

(Footnote continues on P.27)

The percent of "known" groups correctly classified is improved by 15.38% when a Bayesian adjustment for differences in group size is introduced. Hence Table 2.5 results in correct classifications in 64.01% of the cases.

Although the Bayesian adjustments markedly improves the overall correct classification of cases, there are several disadvantages in its use. Thus, if we examine the diagonals for Tables 2.4 and 2.5 respectively, we discover, that while the introduction of a Bayesian adjustment for gross inequalities in group sizes improves the percentage of cases correctly classified in the groups "work full-time" and "attend university", this adjustment results in poorer classification for the other three groups. For example, in Table 2.4 we find that 44.1% of respondents who are actually attending CAATs were also in the identical predicted group. But when we turn to Table 2.5, this percentage decreases to 26.6%. Thus, while it would appear that the Bayesian adjustment improves the accuracy in prediction of the two largest and nearly equal sized groups, it results in a poorer classification of the three other groups which are smaller and more grossly different in size.

Our objectives in this chapter have been to identify and describe the analysis and classificatory aspects of discriminant analysis and employ the latter technique in exploring the information gathered in our panel survey. The power of discriminant analysis was demonstrated both in terms of its analysis features and classification features.

will more likely be assigned to a larger group. Alternately if one has reason to specify different probabilities, this specification can be provided. See Cooley and Lohnes, 1971, Chapt. 10, for a discussion of the classification effects of grossly different size classes.

The fact that we are able to obtain an overall accuracy of 64% in prediction is adequate evidence of the technique's strength. The implications, in terms of counselling adolescents concerning career choices, etc., and forecasting are obvious. What needs to be stressed here, however, is that not all of the assumptions and mathematics of discriminant analysis have been worked out by this researcher. A proper and wise employment of the technique would most certainly necessitate the careful attention of experts trained in the areas to which discriminant analysis might be applied.

Table 2.1: Discriminating Power of Discriminant Functions for Educational, Vocational and Alternate Choice Classes

Discriminant Function	Eigenvalue	Relative Percentage	Canonical Correlation	Functions Derived	Wilk's Lambda	Chi-Square	DF	Significance
1	0.88052	88.69	0.684	0	0.4770	824.206	48	0.0
2	0.08426	8.49	0.279	1	0.8970	120.977	33	0.0
3	0.02436	2.45	0.154	2	0.9726	30.899	20	0.057
4	0.00369	0.37	0.061	3	0.9963	4.098	9	0.905

Table 2.2: Standardized Discriminant Function Coefficients

Variable	Function 1	Function 2
Encouragement - mother	0.28095	- 0.22789
Encouragement - father	- 0.03582	- 0.15814
Reason for education- understand ideas	0.10514	0.02851
Ability to graduate from university	0.51192	0.28754
Ability to graduate from CAAT	- 0.17982	- 0.46006
Grades	0.88128	0.42407
Sex	- 0.03829	0.40583
Father's education	- 0.15797	- 0.09144
Friends in CAAT	0.03281	- 0.25257
Friends in university	0.78701	- 0.01572
Friends in labour force	- 0.58428	0.44957
Parents' educational expectations	- 1.96134	- 0.05441

Discriminant Function 1: Parental expectations - university directed

Discriminant Function 2: Work - CAAT directed

Table 2.3: Centroids of Groups in Reduced Space

Groups	Function 1	Function 2	Function 3	Function 4
Work full-time	2.53542	-0.20478	0.02201	0.00492
Attend university	- 3.00209	-0.09430	0.00732	0.00814
Attend CAAT	0.67369	0.53215	0.10523	- 0.00935
Part-time study	- 0.59220	-0.14357	- 0.13450	- 0.34645
Alternative activities	0.97602	0.29158	- 0.28658	0.02528

Figure 2.1: Centroids of Groups in the Discriminant Plane



Table 2.4: Classification Results for Educational, Vocational
and Alternate Choice Classes - Direct Solution

<u>Actual Group</u>	<u>Predicted Group Membership</u>					
	<u>No. of Cases</u>	<u>Work Full- time</u>	<u>Attend Univer- sity</u>	<u>Attend CAAT.</u>	<u>Part- time</u>	<u>Alternate Activities</u>
Work full-time	768	47.1%	7.8%	18.9%	10.9%	15.2%
Attend university	607	2.1%	62.1%	8.1%	19.3%	8.4%
Attend CAAT	263	14.8%	10.3%	44.1%	11.8%	19.0%
Part-time studies	35	20.0%	28.6%	20.0%	17.1%	14.3%
Alternate activities	186	28.5%	12.9%	21.0%	14.5%	23.1%
Ungrouped cases	128	21.1%	13.3%	30.5%	16.4%	18.8%

Percent of "grouped" cases correctly classified: 48.63%

Table 2.5: Classification Results for Educational,
Vocational and Alternate Choice Classes -
Bayesian Solution

<u>Actual Group</u>	<u>Predicted Group Membership</u>					
	<u>No. of Cases</u>	<u>Work Full- time</u>	<u>Attend Univer- sity</u>	<u>Attend CAAT</u>	<u>Part- time</u>	<u>Alternate Activities</u>
Work full-time	768	76.4%	16.3%	6.8%	0.0%	0.5%
Attend university	607	10.0%	87.1%	2.5%	0.0%	0.3%
Attend CAAT	263	42.6%	30.0%	26.6%	0.0%	0.8%
Part-time studies	35	51.4%	42.9%	5.7%	0.0%	0.0%
Alternate activities	186	58.6%	31.2%	8.1%	0.0%	2.2%
Ungrouped cases	128	57.8%	25.8%	15.6%	0.0%	0.8%

Percent of "grouped" cases correctly classified: 64.01%

CHAPTER THREE

A Description of Grade 12 Students One and a Half Years Later

In the Spring of 1973 we asked a selected sample of Grade 12 students in Ontario exactly what they planned to be doing in the Fall of 1974. On the basis of these stated intentions, we developed profiles of the students. In November 1974, we were able to ascertain what most of these same adolescents actually wound up doing. Moreover, we were able to learn from our initial phase and requested additional information in the third phase of the survey. Our major objective, then, in this present chapter is to develop a separate profile of adolescents in our sample, based on what they're currently doing and, in part, on newly acquired information.

The description we shall develop is based on five classes of present activity -- working full-time, attending university, attending community college, taking part-time studies and engaging in other activities.¹ In addition to general descriptions of these classes or groups, we will also present new information relevant to respondents working full-time and respondents attending universities and CAATs.

A final section contains a Statistics Canada occupational classification of jobs with reference to parents' present jobs (as expressed in Phase One). In addition, we present occupational expectations and aspirations for male and female respondents separately (Phase One responses). Then we offer a comparable breakdown, by sex, of the

¹ Appendix III - Decision Rules for Classification.

Present (Phase Three) work experiences of full-time working respondents together with a similar breakdown of the occupational expectations of respondents who are presently attending university or community college.²

The discriminant function analysis, that we introduced and employed in the previous chapter, is extremely useful in identifying the relative importance of variables in terms of our description of respondents based on their current educational and vocational activities. Recall that standardized discriminant function coefficients were presented in Table 2.2. These coefficients are of great analytical importance in that the absolute value of each coefficient represents the relative contribution of its associated variable to that function. The interpretation is similar to the interpretation of beta weights in multiple regression where one may speak of the relative importance of variables on the first function. In Fig. 3.1 we offer a presentation of the twelve variables employed in our previous discriminant analysis of five classes or groups. These variables are presented in terms of their rank order of importance on the first discriminant function. Therefore, we may note that parents' educational expectation is a relatively more discriminating variable than grades, friends in university, etc., in terms of its capacity to differentiate our different classes or groups.

2

Statistics Canada, Occupational Classification Manual, 1971, pp. 7-23.

Description of respondents

Most respondents who were formerly Grade 12 students were single in November 1974 (93.4%). Of the 6.4% who did marry, more than 60% were found to be working full-time. Of those respondents who took full-time jobs most (more than 60%) are still at their first job; more than 20% have moved to a second position. It is interesting to note that only 10% full-time university students and more than 20% full-time CAAT students have held jobs since their high school graduation. As we might suspect, approximately 70% of the respondents engaged in part-time studies have held at least one job since they graduated from high school.

Respondents were asked how well their high school education had prepared them for what they were now doing. Table 3.1 indicates that a majority of respondents feel their high school education prepared them at least moderately well for present activities. This is not to say that variations among groups cannot be discerned. Fully 32.0% of working respondents claimed that their education is of little help in terms of what they are presently doing. Those respondents engaged in part-time studies and attending university were least likely to criticize their previous education.

In the section that follows we will present a description of respondents who are currently engaged in a variety of educational or vocational activities. This description is divided into two parts; the first part consists of a sociological/demographic description while the second part consists of a social-psychological description.

Sociological/Demographic description

The labour force, universities and part-time studies would appear to attract (Table 3.2) approximately equal proportions of males and females. Community colleges stand out, however, in that almost 60% of the respondents from our sample who are currently attending a community college are female. The same holds true for those engaged in alternate activities.

Universities clearly attract academically superior students because almost 70% of the respondents currently attending university achieved grade averages of B or higher in secondary school. Note that less than 30% of the respondents who accepted jobs upon graduating from school achieved comparable grade averages. Respondents now attending CAATs did not excel in their high school studies; only 35.4% obtained B or higher grade averages.

Respondents who are currently attending university obviously enjoy a more privileged background; more than 60% have fathers who at least completed high school. Only 33.3% of working respondents and 40% of the respondents now in CAATs can make the same claim (Table 3.4). Note too, that more than half of the respondents currently engaged in part-time studies claim that their fathers completed secondary school or achieved higher levels of education; these same respondents also performed relatively well in high school.

The influence of social networks as they are associated with the current work or educational activities of respondents becomes obvious when we explore Tables 3.5 - 3.7. For instance, well over 40% of the

respondents attending community colleges stated that among their circle of friends in high school, about half or more went to a community college, but only slightly more than 20% of the respondents presently in university and 30% of the working respondents made equivalent statements.

While more than 80% of the respondents now at university informed us that half or more of their friends followed a similar route, approximately 30% of the working respondents and 50% of the respondents studying part-time and attending community college claimed that their friends chose university. Finally, well over 50% of the working respondents informed us that more than half of their friends also entered the job market. Only 11.4% of respondents attending university and 24.2% of respondents attending CAATs informed us that more than half of their friends were employed at full-time jobs. This information would appear to indicate that friends make similar decisions or are friends because they think and act in similar ways.

Social-psychological description

We asked respondents to tell us the highest level of formal education their parents expected them to attain. In Table 3.8 we can clearly see the relationship of parental expectations and the present activities of former Grade 12 students. For instance, more than 90% of the respondents currently attending university stated their parents expected them to attain a B.A. or higher degree. This contrasts rather sharply with working respondents in that only 20% claimed

that their parents have identical expectations. It is interesting to note that almost 80% of the respondents attending CAATs claim their parents expect them to graduate from a community college. Parental expectation is strongly associated with the present activities of respondents; we should also recall that expectations ranked first as a discriminant variable.

Parents serve not only to provide their sons and daughters with specific kinds of educational expectations but also to act as sources of emotional support (or non-support). Respondents in the first phase of the survey were asked to indicate the extent to which their mothers and fathers encouraged or discouraged them from pursuing a post-secondary education. Tables 3.9 and 3.10 indicate fairly wide variations in terms of adolescents' present activities. Thus, we find that while approximately half of the respondents currently enrolled in universities and CAATs perceive both parents as very encouraging, considerably fewer working respondents (slightly over 30%) viewed their mothers and fathers as sources of strong encouragement when it came to continuing their education after high school.

Very few respondents who entered university had felt, while in secondary school, that they lacked the ability to graduate from university; in fact, less than 10% expressed doubt concerning their ability graduate from a university (Table 3.11). In contrast, nearly a quarter of working respondents and 17.9% of respondents now attending community colleges, initially informed us that they had possessed strong doubts con-

cerning their ability to graduate from university.

Respondents who entered universities were even more confident, while they were in secondary school, of their ability to graduate from CAATs. The same trend applies to those who actually enrolled in community college; more than 90% replied affirmatively when asked if they possessed the ability to graduate from a community college. Working respondents proved the least confident of all groups, in that more than 20% expressed doubt concerning their ability to graduate from a CAAT (Table 3.12).

We asked respondents in Phase One of our survey to rate the importance of being better able to understand ideas as a reason for pursuing a higher education. Although all groups place a strong emphasis on this particular reason, there is variation among the specific groups. Respondents who enrolled in universities and community colleges most strongly emphasized the importance of understanding ideas (Table 3.13). Thus, over 70% of the respondents in both aforementioned groups stressed that understanding ideas as a reason for attaining a higher Degree was important. Few than 70% of the working respondents made a similar claim when asked.

Description of full-time working respondents

Respondents who elected to assume full-time work roles were asked what prompted them to go to work. A variety of open-ended responses resulted; these responses were coded and are presented in Table 3.14b. We may observe that a fairly large proportion of adolescents who enter

the labour force do so for non-career-related reasons. Thus, over 40% of the respondents assume work roles in order to "avoid school", "provide time for decision" or because they "decided not to continue education". However, we do find that 14.0% take jobs to develop a career, 7.7% do so to further finance their education and 10.1% view a full-time job as a strategy for "personality development".

We also find that most high school graduates had relatively little trouble locating their present jobs. As we can see in Table 3.14b, only 9.3% reported they encountered problems in locating their present jobs. Those who are employed in full-time jobs work an average of 33.1 hours per week (Table 14c).

Respondents were also asked what type of work they were presently doing. Bernard Blishen's six-level social class index was used to provide a measure of the work's prestige.³ These six levels were collapsed into three and appear in Table 3.14d. We can note that the majority of working respondents are employed in moderately prestigious jobs while very few are in high prestige jobs. Thus, over 50% of the respondents are in moderately prestigious jobs and over 40% of the respondents were classified as employed in low prestige occupational positions.

This is not to say that the respondents in our survey are unhappy in their jobs. When asked to tell us how satisfied they were with their present jobs over 80% of the respondents reported that they were either satisfied or very satisfied with their present work roles

³ Bernard R. Blishen et.al., (eds), Canadian Society, MacMillan of Canada, 1971, Toronto, p. 506.

(Table 3.14). Fewer than 10.0% informed us that they were either dissatisfied or very dissatisfied with their jobs.

Description of respondents attending university or community colleges

Studying at university or colleges in Ontario is primarily a full-time activity; 96.8% of those studying at universities or CAATs are enrolled as full-time students. Slightly over 2.0% of all university students are enrolled on a part-time basis, while a little over 4.0% of all community college students are similarly enrolled on a part-time basis. In Table 3.15a we present the percentage of university and community college students in our survey enrolled within specific institutions of higher learning.

Students were asked to offer their most important reasons for attending either a community college or university. As we can see from Table 3.15b, three reasons primarily represent the motivations of students who attend universities or CAATs. Nearly 40% see post-secondary institutions as places where they may optimize their own "self-improvement;" over 20% come to universities or CAATs because of their interest in particular programs and a further 20% visualize "financial rewards" as pay-offs for completing their studies. Very few students specify parental pressures, social aspects or delays in making decisions as important reasons for attending university or community college.

On the average, students take 5.4 courses (Table 3.15c) and it is interesting to note that over 40% claim that they were each

enrolled in six or seven courses. The median number of courses in which students are enrolled is 5.4.

Students rely heavily on parents, savings from summer work and government loans and grants to finance their studies. From Table 3.15d, we can see that almost 40% rely on parents and inheritances, over 30% save their summer earnings in order to finance their higher education and fewer than 20% depend on government loans and grants. In Spring 1973, the same students informed us about their intended financial sources. Again, Table 3.15d indicates fewer students relied on parental support, but a greater proportion dug into summer work savings to finance their education. Fewer students found it necessary to use their personal savings as they had intended back in the Spring of 1973.

We were also interested in identifying the sorts of pressures encountered by students in completing their studies. Thus, university and community college students were asked to list the major pressures facing them. One interesting finding, that resulted from this exercise, can be seen in Table 3.15e: almost 40% of the students claimed that they were meeting no pressures in completing their studies. Over 30% of the students told us that heavy academic workloads and grade problems constituted major pressures for them. Only 4.6% felt that financial problems constituted a major pressure.

Of those students who formulated and identified major pressures for us, nearly a third claimed they were bothered a lot because of the specified problem. Only a quarter of the students emphasized that they were not bothered very much by the pressure they had identified for us (Table 3.15f).

Students in community colleges and universities were also requested to supply us with some idea of the sort of job they expected to obtain after completing their studies. Their responses were coded, by once again, using Blishen's social class index.⁴ From Table 3.15g, we can observe that most students look forward to occupying prestigious positions. Fully 69.0% expect to find jobs with fairly high occupational prestige and only 2.7% expect to enter low-prestige positions. If we contrast Table 3.15g with 3.14d, the comparison is quite startling. While only 3.5% of presently-working respondents are employed at high-prestige jobs, 69.0% of students expect to enter comparably prestigious positions after completing their studies -- a difference of 65.5%.

Occupational classification:

Parents' occupations

Adolescents in Phase One were asked to describe specifically both their mother's and father's job or occupation and where they worked. A sample response from one adolescent, when asked to describe his father's job, was: "He delivers mail for the post office". Statistics Canada has developed a classification of occupations which offers 22 major groupings and derives from the kind of work performed as well as the

⁴

Blishen, op. cit.

principal kind of economic activity of the establishment in which the person works.

Table 3.16a indicates that over half of respondents' fathers were primarily employed in five different kinds of occupations in Spring 1973: 15.4% held Management or Administrative posts; 11.0% were in Sales; 10.4% worked in Product Fabricating, Assembling and Repairing occupations; 9.5% were in Construction and 7.6% were involved in Farming, Horticultural and Animal Husbandry.

The mothers of respondents were engaged in radically different kinds of work than their husbands, in that over half were either in Clerical or Service jobs. In fact, 37.9% were in Clerical and a further 16.6% held Service positions. An additional 12.3% were in Sales and 9.4% in Medicine and Health.

Occupational expectations and aspirations of Phase One respondents

Respondents in Phase One were requested to provide us with some notion of the kind of work they realistically expected to wind up doing and the kind of work they would like to be doing 15 or 20 years from now. These questions provide us, therefore, with measures of occupational expectations and aspirations.

Tables 3.16b and 3.16c detail the occupational expectations and aspirations of Phase One male and female respondents. A close examination of Table 3.16b should reveal that slightly over half the

males in Phase One realistically expected to be working in any one of five different kinds of areas. More precisely, 18.8% expected to obtain jobs in Natural Science, Engineering and Mathematics; 11.2% believed they would eventually teach; 8.5% were planning on Managerial or Administrative positions; 7.7% planned to enter Construction and 6.7% expected to enter Product Fabricating, Assembling and Repairing occupations. It is interesting to note that while only 9.4% of fathers were working in Natural Sciences, Engineering, Mathematics and Teaching occupations, 30.0% of their sons expected to enter such fields. Fewer sons, however, expected to enter Farming and Sales occupations.

Over 70% of the female respondents expected to enter either Clerical, Medicine and Health or Teaching positions. This information provides dramatic confirmation of the fact that women select from a much narrower range of jobs than men. That far more women than men plan on taking clerical jobs would also indicate that sex-role attitudes play a crucial role in job selection.

Some interesting insights concerning the role of sex in choosing occupations may be derived from examining Table 3.16c. Thus, while 34.5% of women expected to obtain clerical jobs, only 18.8% informed us that they would like to opt for clerical positions. If given the opportunity, women would rather select from a variety of professional, managerial or artistic occupations. There are differences between men's occupational expectations and aspirations. But these variations are slight and certainly not as pronounced as they are for women.

Present occupational experiences of Phase Three respondents and occupational expectations of university and CAAT students

Table 3.16d reveals that over 40% of the female respondents were employed in Clerical positions in November 1974. Only 13.0% of their male counterparts were similarly employed. We also found that a further 16.5% of males were in Construction; 13.8% were in Product Fabricating, Assembling and Repairing occupations; 8.8% were in Sales and 7.9% were located in Machining and Related occupations. It is interesting to note that proportionately more sons are in Construction (16.5%) than fathers (9.5%). Also, far fewer sons (2.1%) than fathers (15.4%) are working at Managerial or Administrative jobs.

The effects of post-secondary education become visible once we examine Table 3.16e. Fewer than 10% of the women expect to obtain Clerical jobs while over half expect to enter either Teaching or Medical and Health occupations. But sex differences are still apparent, in that only slightly more than 20% of males also expect to enter Teaching or Medical and Health occupations. Proportionately more males than females (almost 5 to 1) either expect to obtain Managerial and Administrative jobs or make a career in the Natural Sciences, Engineering and Mathematics.

A casual comparison of the job expectations of university and CAAT students with the present job experiences of former Grade 12 students provides ample proof of the perceived influence, by students, of an advanced degree. Far greater proportions of university and community college students expect to enter either managerial or professional positions after completing their education. These expectations may,

however, be largely based on obtaining degrees beyond the B.A. level. If not, one could seriously question the extent of realism behind these occupational expectations.

Figure 3.1

Rank Order of Variables
on First Discriminant
Function

1. Parents' educational expectations
2. Grades
3. Friends in university
4. Friends in labour force
5. Ability to graduate from university
6. Encouragement - mother
7. Ability to graduate from CAAT.
8. Father's education
9. Reason for education - understand ideas
10. Sex
11. Encouragement - father
12. Friends in CAAT

Table 3.1: Activity in Fall 1974 and Perception of How Well High School Prepared Respondent for this Activity

High School Preparation

	Very Well	Moderately Well	Not Very Well	Not Well at All	
Work full-time	21.7	46.2	19.6	12.4	32423 39.8
Attend university	30.3	56.1	10.4	3.3	27981 34.4
Attend CAAT	26.2	51.0	16.6	6.2	12235 15.0
Part-time studies	34.2	57.1	5.9	2.8	1272 1.6
Other activities	20.5	55.5	15.8	8.1	7516 9.2
	20706 25.4	41805 51.3	12566 15.4	6350 7.8	81427 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

Table 3.2: Activity in Fall 1974 and Sex

	<u>Sex</u>		
	Male	Female	
Work full-time	50.6	49.4	35339 40.6
Attend university	50.8	49.2	29204 33.5
Attend CAAT	40.7	59.3	12235 14.0
Part-time studies	51.7	48.3	1494 1.7
Alternate activities	42.5	57.5	8835 10.1
	42210 48.5	44897 51.5	87107 100.0

Table 3.3: Activity in Fall 1974 and Grades

	<u>Grades</u>		
	B or Higher	C+ or Lower	
Work full-time	29.7	70.3	35006 40.6
Attend university	69.3	30.7	28972 33.6
Attend CAAT	35.4	64.6	12174 14.1
Part-time studies	51.8	48.2	1443 1.7
Other activities	33.1	66.9	8733 10.1
	38387 44.4	47258 55.6	85645 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

Table 3.4: Activity in Fall 1974 and Father's Education

	Father's education		
	Some Secondary or Less	Completed Secondary and More	
Work full-time	66.7	33.3	31548 40.2
Attend university	38.9	61.1	26844 34.2
Attend CAAT	59.6	40.4	10987 14.0
Part-time studies	46.5	53.5	11359 1.7
Other activities	60.0	40.0	7680 9.8
	43329 55.2	35089 44.8	78418 100.0

Table 3.5: Activity in Fall 1974 and Friends in Community College

	Number of Friends			
	All or Nearly All	About Half	Only Few or None	
Work full-time	5.0	25.1	69.9	32284 39.6
Attend university	3.1	18.2	78.7	28017 34.4
Attend CAAT	8.2	35.9	55.8	12115 14.9
Part-time studies	0.0	22.8	77.2	1272 1.6
Other activities	9.1	24.8	66.1	7824 9.6
	4195 5.1	19770 24.3	57546 70.6	81511 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

Table 3.6: Activity in Fall 1974 and Friends in University

	<u>Number of friends</u>			
	All or Nearly All	About Half	Only Few or None	
Work full-time	11.8	18.7	69.5	32284 39.6
Attend university	55.1	27.0	17.9	28017 34.4
Attend CAAT	20.5	30.4	49.2	12115 14.9
Part-time studies	40.2	10.6	49.2	1272 1.6
Other activities	21.3	19.8	58.9	7824 9.6
	23895 29.3	18959 23.3	38657 47.4	81511 100.0

Table 3.7: Activity in Fall 1974 and Friends Working

	<u>Number of friends</u>			
	All or Nearly All	About Half	Only Few or None	
Work full-time	36.9	20.5	42.5	32284 39.6
Attend university	3.4	8.0	88.6	28017 34.4
Attend CAAT	11.9	12.3	75.8	12115 14.9
Part-time studies	26.3	6.2	67.4	1272 1.6
Other activities	24.1	15.8	60.1	7824 9.6
	16548 20.3	11670 14.4	53293 65.4	81511 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

Table 3.8: Activity in Fall 1974 and Parental Expectations

	Parental Expectations			
	High School Grad. or Less	CAAT Degree	B.A. or Higher	
Work full-time	58.0	20.6	21.4	26634 38.1
Attend university	4.4	1.3	94.3	24378 34.9
Attend CAAT	6.0	79.0	15.0	10982 15.7
Part-time studies	33.3	26.3	40.4	1135 1.6
Other activities	37.6	25.7	36.7	6742 9.6
	20077 28.7	16507 23.6	33286 47.7	69870 100.0

Table 3.9: Activity in Fall 1974 and Father's Encouragement

	Father's Encouragement		
	Encouraged Very Much	Encouraged Little or Discouraged	
Work full-time	33.8	66.2	29830 38.5
Attend university	53.7	46.3	27592 35.6
Attend CAAT	50.1	49.9	11157 14.4
Part-time Studies	36.4	63.6	1125 1.5
Other activities	49.0	51.0	7831 10.1
	34746 44.8	42790 55.2	77536 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

Table 3.10: Activity in Fall 1974 and Mother's Encouragement

	Mother's Encouragement		
	Encouraged Very Much	Encouraged little or Discouraged	
Work full-time	34.2	65.8	31855 39.2
Attend university	52.8	47.2	28346 34.8
Attend CAAT	48.7	51.3	11756 14.5
Part-time studies	39.1	60.9	1269 1.6
Other activities	48.1	51.9	8116 10.0
	36004 44.3	45337 55.7	81341 100.0

Table 3.11: Activity in Fall 1974 and Ability to Graduate from University

	Ability to Graduate			
	Yes	Not Sure Either Way	Probably or Definitely not	
Work full-time	43.9	31.9	24.3	35008 40.6
Attend university	89.9	9.6	0.4	29114 33.8
Attend CAAT	52.5	29.6	17.9	12035 14.0
Part-time studies	74.6	16.2	9.3	1442 1.7
Other activities	58.5	22.9	17.6	8654 10.0
	54081 62.7	19727 22.9	12445 14.4	86253 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

Table 3.12: Activity in Fall 1974 and Ability to Graduate from Community College

	<u>Ability to Graduate</u>			
	Yes	Not sure Either Way	Probably or Definitely Not	
Work full-time	76.6	18.2	5.2	34822 41.3
Attend university	93.4	5.7	1.0	27357 32.5
Attend CAAT	90.2	8.4	1.4	12119 14.4
Part-time studies	100.0	0.0	0.0	1450 1.7
Other activities	83.9	9.9	6.2	8514 10.1
	72639 85.1	9754 11.6	1772 3.3	84263 100.0

Table 3.13: Activity in Fall 1974 and Importance of Being Better Able to Understand Ideas as Reason for Pursuing Higher Education

	<u>Importance of Ideas</u>		
	Important	Not Important	
Work full-time	69.0	31.0	34938 40.4
Attend university	77.6	22.4	29046 33.6
Attend CAAT	72.0	28.0	12101 14.0
Part-time studies	66.5	33.5	1494 1.7
Other activities	76.9	23.1	8798 10.2
	63122 73.1	23254 26.9	86376 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

Table 3.14a: Reasons for Working Full-time

<u>Reason</u>	<u>Working full-time</u>
Finance further education	7.7
Avoid school	25.0
Partially support self	3.7
Fully support self	19.5
Personality development	10.1
Provide time for decision	8.8
Decided not to continue education	8.4
Career reasons	14.0
Other	2.5
Don't know	0.3
	<hr/>
N = 32234	100.0 %

Table 3.14b: Trouble Finding a Job

<u>Trouble</u>	<u>Working Full-time</u>
Yes	9.3
No	90.7
	<hr/>
N = 32423	100.0%

Table 3.14c: Hours Worked Per Week

<u>Number of Hours</u>	<u>Working Full-time</u>
2 - 20	0.2
21 - 34	1.7
35 - 40	70.4
41+	27.8
	<hr/>
N = 35467	100.0%

Table 3.14d: Type of Work in Terms of Occupational Prestige

<u>Occupational Prestige</u>	<u>Working Full-time</u>
High	3.5
Moderate	53.1
Low	43.4
	<hr/> 100.0%

N = 35256

Table 3.14e: Satisfaction Associated with Job

<u>Satisfaction</u>	<u>Working Full-time</u>
Very satisfied	41.0
Satisfied	41.1
Indifferent	8.9
Dissatisfied	5.3
Very dissatisfied	3.7
	<hr/> 100.0%

N = 32365

Table 3.15a: Percentages of University and Community College
Students Attending Specific Institutions of
Higher Learning in Ontario

<u>Institution - Community College</u>	<u>Percentage Enrolled</u>	<u>Cumulative Percentage</u>
Algonquin	3.5	3.5
Cambrian	2.3	5.8
Canadore	0.7	6.5
Centennial	1.2	7.7
Conestoga	1.0	8.7
Confederation	0.2	8.9
Durham	0.2	9.1
Fanshawe	2.0	11.1
George Brown	1.4	12.5
Georgian	0.7	13.2
Humber	4.5	17.7
Lambton	0.4	18.1
Loyaliste	0.5	18.6
Mohawk	2.8	21.4
Niagara	2.1	23.5
Northern	0.7	24.2
St. Clair	1.6	25.8
St. Lawrence	1.7	27.8
Sault Ste. Marie	0.8	28.3
Seneca	2.8	31.1
Sheridan	1.8	32.9
Sir Sandford Fleming	1.4	34.3

<u>Institution - University</u>	<u>Percentage Enrolled</u>	<u>Cumulative Percentage</u>
Brock	1.0	35.3
Carleton	4.7	40.0
Guelph	5.0	45.0
Lakehead	0.8	45.5
Laurentian	2.2	47.7
McMaster	5.4	53.1
Ottawa	3.0	56.1
Queen's	2.8	58.9
Ryerson	4.1	63.0
Toronto	12.9	75.9
Trent	0.8	76.7
Waterloo	7.8	84.5
Western	6.6	91.0
Wilfred Laurier	1.2	92.3
Windsor	2.0	94.2
York	4.6	98.8
Other Universities	1.2	100.0

N = 45451

Table 3.15b: Reasons for Attending University or Community College

<u>Reasons</u>	<u>Percentage</u>
Parental pressure	1.6
Interest in program	22.9
Self-improvement	38.3
Broaden prospects	7.3
Financial rewards	20.1
Status and prestige	4.7
Delay decision	1.2
Social aspects	1.8
Other reasons	2.2
	<hr/>
N = 42933	100.0%

Table 3.15c: Number of Credit Courses Enrolled In

<u>Number of courses</u>	<u>Percentage</u>
One	2.8
Two	0.9
Three	0.6
Four	3.6
Five	47.3
Six	25.5
Seven	19.4
	<hr/>
N = 42196	100.0%

Table 3.15d: Major Source of Finances

<u>Major Source</u>	<u>Percentage</u> (Spring 1973)	<u>Percentage</u> (November 1974)
Parents, inheritances	44.8	38.9
Government loans and grants	15.5	15.1
Scholarships and/or bursaries	2.9	3.6
Savings from summer work	22.4	34.6
Earnings from part-time work while studying	1.3	3.5
Loans from parents, relatives, and/or friends	2.4	0.4
Personal savings	9.0	3.0
Other	1.8	0.8
Don't know	0.0	0.3
		<hr/> 100.0%
N = 43008		

Table 3.15e: Major Pressure in Completing Studies

<u>Major pressure</u>	<u>Percentage</u>
No pressure	39.1
Workload heavy	34.3
Self doubt	5.9
Adapting to new environment	4.1
Financial problems	4.6
Grade problems	4.3
Outside pressure	3.7
Other	4.0
	<hr/> 100.0%
N = 43014	

Table 3.15f: Extent to which Students are
Bothered by Major Pressure

<u>Bothered</u>	<u>Percentage</u>
A lot	29.6
Some	44.9
Not very much	25.5
	<hr/> 100.0%

N = 26080

Table 3.15g: Type of Work Expected in Terms
of Occupational Prestige - after
Completion of Studies

<u>Occupational prestige (expectations)</u>	<u>Percentage</u>
High	69.0
Moderate	28.3
Low	2.7
	<hr/> 100.0%

N = 42829

Table 3.16a: Fathers' and Mothers' Occupation: Statistics
Canada Classification

Occupational Classification	Father	Mother
Managerial, Administrative and Related Occupations	15.4	.25
Natural Sciences, Engineering and Mathematics	6.8	0.6
Social Sciences and Related Fields	0.9	2.1
Religion	0.2	0.0
Teaching	2.6	6.6
Medicine and Health	2.0	9.4
Artistic, Literary, Recreational and Related Occupations	1.9	1.5
Clerical and Related Occupations	5.1	37.9
Sales	11.0	12.3
Service	5.8	16.6
Farming, Horticultural and Animal Husbandry Occupations	7.6	1.0
Fishing, Hunting, Trapping and Related Occupations	0.1	0.0
Forestry and Logging	0.3	0.0
Mining and Quarrying, including Oil and Gas Field Occupations	1.6	0.0
Processing Occupations	3.5	2.2
Machining and Related Occupations	6.0	1.0
Product Fabricating, Assembling and Repairing Occupations	10.4	4.0
Construction Trades Occupations	9.5	0.0
Transport Equipment Operating Occupations	5.6	0.5
Materials Handling and Related Occupations, N.E.C.	2.1	1.1
Other Crafts and Equipment Operating Occupations	1.7	0.5
Not classified	0.0	0.3
TOTALS	85641 100.0%	64846 100.0%

Table 3.16b: Occupational Expectations of Phase One Respondents
By Sex: Statistics Canada Classification

Occupational Classification	Male	Female
Managerial, Administrative and Related Occupations	8.5	2.1
Natural Sciences, Engineering and Mathematics	18.8	3.3
Social Sciences and Related Fields	6.6	6.7
Religion	0.4	0.5
Teaching	11.2	17.7
Medicine and Health	6.1	19.4
Artistic, Literary, Recreational and Related Occupations	6.1	6.9
Clerical and Related Occupations	3.0	34.5
Sales	5.5	3.5
Service	5.0	3.9
Farming, Horticultural and Animal Husbandry Occupations	3.6	0.7
Fishing, Hunting, Trapping and Related Occupations	0.0	0.0
Forestry and Logging	1.3	0.1
Mining and Quarrying, including Oil and Gas Field Occupations	0.1	0.0
Processing Occupations	0.9	0.0
Machining and Related Occupations	3.3	0.0
Product Fabricating, Assembling and Repairing Occupations	6.7	0.5
Construction Trades Occupations	7.7	0.0
Transport Equipment Operating Occupations	4.4	0.0
Materials Handling and Related Occupations, N.E.C.	0.3	0.0
Other Crafts and Equipment Operating Occupations	0.1	0.0
Not classified	0.3	0.3
TOTALS	34390 46.3 %	39939 53.7 %
		74328 100.0

Table 3.16c: Occupational Aspirations of Phase One Respondents
By Sex: Statistics Canada Classification

Occupational Classification	Male	Female
Managerial, Administrative and Related Occupations	10.5	4.3
Natural Sciences, Engineering and Mathematics	21.8	4.1
Social Sciences and Related Fields	8.4	8.6
Religion	0.3	0.6
Teaching	8.7	19.2
Medicine and Health	7.4	23.4
Artistic, Literary, Recreational and Related Occupations	9.4	11.3
Clerical and Related Occupations	1.2	18.8
Sales	2.8	1.8
Service	4.9	6.1
Farming, Horticultural and Animal Husbandry Occupations	4.5	0.8
Fishing, Hunting, Trapping and Related Occupations	0.0	0.0
Forestry and Logging	2.3	0.2
Mining and Quarrying, including Oil and Gas Field Occupations	0.0	0.0
Processing Occupations	0.4	0.0
Machining and Related Occupations	1.6	0.0
Product Fabricating, Assembling and Repairing Occupations	6.1	0.4
Construction Trades Occupations	4.5	0.0
Transport Equipment Operating Occupations	4.4	0.2
Materials Handling and Related Occupations, N.E.C.	0.0	0.0
Other Crafts and Equipment Operating Occupations	0.4	0.0
Not classified	0.2	0.2
TOTALS	40435 48.3%	43220 51.7%
		83654 100.0%

Table 3.16d: Present Job Activities of Full-time Working Respondents in Phase Three by Sex: Statistics Canada Classification

Occupational Classification	Male	Female	
Managerial, Administrative and Related Occupations	2.1	0.7	
Natural Sciences, Engineering and Mathematics	4.1	0.4	
Social Sciences and Related Fields	0.3	0.5	
Religion	0.0	0.0	
Teaching	0.3	1.1	
Medicine and Health	0.0	4.6	
Artistic, Literary, Recreational and Related Occupations	0.9	0.2	
Clerical and Related Occupations	13.0	73.3	
Sales	8.8	8.9	
Service	4.4	4.7	
Farming, Horticultural and Animal Husbandry Occupations	4.7	1.1	
Fishing, Hunting, Trapping and Related Occupations	0.0	0.0	
Forestry and Logging	0.6	0.0	
Mining and Quarrying including Oil and Gas Field Occupations	0.7	0.0	
Processing Occupations	6.0	0.6	
Machining and Related Occupations	7.9	0.7	
Product Fabricating, Assembling and Repairing Occupations	13.8	2.4	
Construction Trades Occupations	16.5	0.3	
Transport Equipment Operating Occupations	7.3	0.0	
Materials Handling and Related Occupations, N.E.C.	5.0	0.0	
Other Crafts and Equipment Operating Occupations	3.7	0.4	
Not classified	0.0	0.0	
TOTALS	16430 49.0%	17117 51.0%	33548 100.0%

Table 3.16e: Occupational Expectations of Phase One Respondents
Attending University and Community College by Sex:
Statistics Canada Classification

Occupational Classification	Male	Female	
Managerial, Administrative and Related Occupations	15.9	7.0	
Natural Sciences, Engineering and Mathematics	34.7	5.4	
Social Sciences and Related Fields	11.0	11.4	
Religion	0.5	0.3	
Teaching	12.5	28.0	
Medicine and Health	10.0	25.3	
Artistic, Literary, Recreational and Related Occupations	7.0	9.1	
Clerical and Related Occupations	1.0	8.9	
Sales	0.7	1.0	
Service	1.4	3.1	
Farming, Horticultural and Animal Husbandry Occupations	0.9	0.2	
Fishing, Hunting, Trapping and Related Occupations	0.0	0.0	
Forestry and Logging	0.2	0.0	
Mining and Quarrying including Oil and Gas Field Occupations	0.0	0.0	
Processing Occupations	0.0	0.0	
Machining and Related Occupations	0.0	0.0	
Product Fabricating, Assembling and Repairing Occupations	3.1	0.0	
Construction Trades Occupations	0.2	0.0	
Transport Equipment Operating Occupations	0.7	0.0	
Materials Handling and Related Occupations, N.E.C.	0.0	0.0	
Other Crafts and Equipment Operating Occupations	0.0	0.5	
Not classified	0.0	0.0	
TOTALS	16991 47.7%	18649 52.3%	35639 100.0%

CHAPTER FOUR

A Profile of Consistents and Inconsistents

This chapter extends the analysis begun in our second report.¹

In this report we explored the thesis that consistents and inconsistent vary substantially on factors associated with an individual's demographic and social background and on factors that relate to educational and vocational choices (e.g. grades). Consistency was defined in terms of the fit or congruency between a respondent's stated intentions and his subsequent choice (or further intentions) over a substantial period of time. We suggested that although situational factors (e.g., death in the family, illness, etc.) may explain some proportion of variations in consistency, a more comprehensive understanding of, and explanation for, variations in consistency can be derived from a knowledge of an adolescent's position in society and experiences in secondary school.

One full year had gone by before we again questioned former Grade 12 students. Well over forty percent of the adolescents who informed us, in Spring 1973, of particular choices they had in mind then, had altered these decisions when they were interviewed in Fall 1974. Naturally, this information invites us once again to analyze the explanatory power of sociological and social-psychological variables in understanding the phenomena of consistency or inconsistency. This analysis is important for a number of reasons. For one, the analysis

¹ Paul Anisef, The Critical Juncture, Follow-up Survey, Chapter Two.

permits us to re-test the hypothesis that adolescents' decisions are developed within a scientifically ascertainable context; by gaining knowledge of this context we may better understand why and how these decisions are made. The additional passage of time also gives us the opportunity for testing the "durability" or "lastingness" of sociological and social-psychological variables. For instance, does an adolescent's grade average play an equally important role - in its association with consistency - over varying lengths of time?

Operational definition of consistency

Consistency is operationally defined in two ways and applies only to respondents completing all three phases of our survey. The components of the operational definition are: (a) One question in the Spring 1973 student questionnaire; "Which statement best describes what you plan to do in the Fall of 1974?" (b) A question asked in November 1973 by telephone interviewers: "A few months ago, the Survey Research Centre at York University conducted a survey to study the educational plans of Ontario High School Students. We are now re-interviewing these students to see if they have made changes in their plans. You were one of the students in the sample and we would like to ask you a few questions.... What do you plan to do in the Fall of 1974?" (c) The telephone survey we conducted in Fall 1974 contained several questions that were designed to provide information as to exactly what activities respondents were then engaged in.²

² See Appendix III for a derivation of the different classes or groups.

Our objective was to obtain measures of consistency that relate to the Fall of 1974. For example, if a respondent said (either in Spring 1973 or Fall 1973) that he planned to attend university and in Fall 1974 he reported that he had enrolled in university, we classified this respondent as "consistent". If the respondent stated he was now working at a full-time job, attending a community college, etc., we classified him "inconsistent".

This classification procedure results in two measures of consistency. One measure relates a person's intentions (Spring 1973) to his actual behaviour in Fall 1974.

Discriminant function analysis was employed in sifting through and identifying a limited number of discriminating sociological and social-psychological variables. We present the discriminant analysis for both measures of consistency in the section that follows. Cross-tabulations of the discriminating variables and consistency are presented only for the Phase One-Phase Three consistency analysis.³

I. Discriminant analysis of consistency

The discriminating power of discriminant functions for consistency classes as operationally defined by Phase One-Phase Three and Phase Two-Phase Three comparisons is illustrated by statistics presented in

³ No statistical test for significance (e.g., chi-square) is employed since such tests are insensitive and misleading when large weighted samples are used.

Tables 4.1a and 4.1b. Recall that the statistics, eigenvalue, canonical correlation, Wilks' Lambda, all measure the relative importance or power of discriminant functions.

One discriminant function is derived in that there are only two classes (i.e., consistent and inconsistent) employed in the analysis. Note that the eigenvalues in Tables 4.1a and 4.1b are relatively low although the chi-square associated with Wilks' Lambda prove statistically significant. The canonical correlations reported in Table 4.1a ($R_c = 0.236$) and Table 4.1b ($R_c = 0.182$) are also relatively low and indicate that the function and the "group variable" are not strongly associated. In other words, the function's ability to discriminate among the consistent-inconsistent classes or groups is not particularly good.

Discriminant functions give us some idea of how well a combination of discriminating variables distinguish among two or more groups. If we employ the same variables in two separate analyses where time is the only additional variable, then the effect of time itself may be reflected in the power of the discriminant functions. We have already discovered that the discriminating power of the functions is relatively low; this does not mean that consistent and inconsistent are indistinguishable when sociological and social-psychological variables are employed. By utilizing the discriminant function and variables in this analysis we were able to correctly classify 59.41% of cases for the Phase One - Phase Three analysis and 68.41% (with a Bayesian adjustment for class

size) of the cases for the Phase Two - Phase Three analysis. Although the functions are relatively weak, they are sufficiently strong to permit an adequate classification. It may be plausible to assume that further investigation could reveal additional variables that would significantly increase the power and classifying ability of the discriminant functions.

In Table 4.2 we present the standardized function coefficients for Phase One - Phase Three and Phase Two - Phase Three consistency analysis. These coefficients represent the relative contributions of the discriminating variables to the discriminant functions.

The same set of twelve variables was employed in both discriminant analyses. We note, from Table 4.2, that grade average is the most important variable in both discriminant analyses. It is approximately twice as important as encouragement-father (Phase One - Phase Three) and sex (Phase Two - Phase Three). In fact, the three most discriminating variables in both analyses are grades, parental expectations and encouragement by father.

Table 4.2 does indicate, however, that variations in time between an initial decision and the behavioural outcome associated with that decision are related to the discriminating variables. Thus, the coefficient for sex in the Phase Two - Phase Three analysis is 0.32994 while in the Phase One - Phase Three it is 0.13242. Thus, the relative importance of gender is stronger in the short run than the longer run in this particular analysis. But the influence of encouragement by father is more than twice as important in the long run than in the short term

analysis. This suggests that, in making choices, adolescents either define or are influenced by a set of variables. However, the time-frame surrounding the choice is also influential, in the sense that the appropriateness and impact of any one variable depends on the length of time between a choice and the subsequent implementation or rejection of the initial decision. For example, a woman may decide at the age of ten to become a physician. At eighteen she may decide against a career in medicine after discovering the types of barriers that exist.

II. Cross-tabulations of consistency and discriminating variables⁴

Consistency is related to the sex of respondent, in that only 46.6% of consistents and 50.8% of inconsistent are male (Table 4.3). The percentage discrepancy is 4.2%; this discrepancy is weaker than the 7.8%

⁴ Four variables (encouragement - mother, encouragement - father, ability to graduate from CAAT, reason for education - understand ideas) do not appear in the cross-tabulations. This is due to the fact that no variations were discovered when these variables were cross-tabulated with consistency. If one recalls that the discriminant coefficients on the first three omitted variables are respectably high, questions concerning the statistical analysis could be raised. Further analysis is required to produce clear and precise answers. We suggest, however, that several areas require probing: (a) The discriminant analysis is performed on the unweighted sample and the cross-tabulations are executed on the weighted sample; what are the implications? (b) Discriminant analysis is a case in point of a linear analysis with potential complexities that may not have yet been identified; what are these complexities (e.g., interaction effects, etc.)? (c) The discriminant function in the consistency analysis proved fairly weak; what are the implications of this fact in interpreting discriminant coefficients?

reported in our consistency analysis in Phase Two.⁵ Thus, males tend more than females to be inconsistent, but the sex differential appears to decrease with the passage of time.

Academic performance is a factor highly correlated with consistency. Those respondents classified as consistent achieved markedly higher grade averages while in secondary school than their inconsistent counterparts. In fact, fully 52.3% of consistents and only 35.2% of inconsistencies managed to obtain B or higher grade averages in their courses while in grade 11 (Table 4.4). This tendency for consistents to achieve higher levels of excellence than inconsistencies is also similar to our findings in Phase Two.⁶

The socio-economic origin of respondents as measured by the amount of formal education that their fathers obtained is associated with consistency although the relationship is weak (Table 4.5). We find that 47.4% of consistents and 43.0% of inconsistencies' fathers have completed at least secondary school education. Many have gone beyond the secondary school level. However, this 4.4% difference is weaker than the almost 11.0% difference reported in Phase Two.⁷ Thus, not unlike the sex differences reported earlier, the differences between consistents and inconsistencies (concerning father's education) diminish as the time interval between decision and action increases.

⁵ Anisef, op. cit., p. 45.

⁶ Anisef, op. cit., p. 42.

⁷ Anisef, op. cit., p. 58.

The social networks of adolescents would appear to bear some association with consistency (Tables 4.6 - 4.8). Phase Three respondents were asked what proportion of their secondary school friends were presently working, attending university or attending community colleges. We find that fully 34.7% of consistents and only 23.8% of inconsistent respondents reported that all or nearly all their friends were attending university in Fall 1974. Fewer consistents than inconsistent respondents claimed that half or more of their friends were enrolled in community colleges. Thus, 26.3% of consistents and 32.7% of inconsistent respondents reported that half or more of their friends were in CAATs in Fall 1974. We would, therefore, expect that a greater proportion of inconsistent respondents would have friends working at full-time jobs. This expectation is congruent with the findings in Table 4.8; 36.5% of inconsistent respondents and 32.3% of consistent respondents reported that half or more of their friends were employed full-time. Note, however, that the percentage difference is relatively small.

Phase Three respondents were also asked what sorts of expectations their parents held (for them) concerning formal education. Table 4.9 illustrates that parents' educational expectations for their children and consistency are closely interrelated variables. Thus, fully 53.2% of consistent respondents and only 41.9% of inconsistent respondents perceived, in Fall 1974, that their parents expected them to obtain at least a B.A. degree. It is interesting to note that nearly half of all parents expect their children to achieve B.A. or higher degrees.

As we would, by now, suspect, consistents are more confident of their ability to graduate from a university than inconsistent: 66.8% of consistents and 58.7% of inconsistent informed us in Phase One of the survey that they had the requisite abilities to graduate from university.

A profile of consistent and inconsistent adolescents emerges after an inspection of the preceding tables. Consistent adolescents are, generally, more likely than inconsistent adolescents (that is, adolescents who act in a manner not in accord with previously stated intentions) to: (1) Be female (2) Achieve higher standards of academic excellence (3) Come from families where their fathers have obtained higher levels of formal education (4) Possess friends who are more university-oriented than involved in either community college or full-time work roles (5) Perceive their parents as having at least university level (B.A. degree) expectations for them and (6) Express a greater confidence in their ability to graduate from university.

Table 4.1a: Discriminating Power of Discriminant Functions for
Consistency-inconsistency Classes (Phase 1-Phase 3)

Discriminant Function	Eigenvalue	Relative Percentage	Canonical Correlation	Functions Derived	Wilks' Lambda	Chi- Square	DF	Significance
1	0.05874	100.0	0.236	0	0.9445	63.411	12	0.000

Table 4.1b: Discriminating Power of Discriminant Functions for
Consistency-inconsistency Classes (Phase 2-Phase 3)

Discriminant Function	Eigenvalue	Relative Percentage	Canonical Correlation	Functions Derived	Wilks' Lambda	Chi- Square	DF	Significance
1	0.03434	100.0	0.182	0	0.9668	33.902	12	0.001

Table 4.2: Standardized Discriminant Function
Coefficients for Phase 1-Phase 3 and
Phase 2-Phase 3

<u>Variable</u>	<u>Function 1</u> <u>(Phase 1-Phase 3)</u>	<u>Function 1</u> <u>(Phase 2-Phase 3)</u>
Encouragement - mother	-0.26553	-0.10818
Encouragement - father	0.34834	0.47758
Reason for education - understand ideas	0.07887	0.05535
Ability to graduate from university	-0.00177	0.01002
Ability to graduate from CAAT	0.16589	0.14130
Grades	-0.63692	-0.58628
Sex	0.13242	0.32994
Father's education	-0.00176	-0.02986
Friends in CAAT	-0.04608	-0.06534
Friends in university	-0.18383	-0.11568
Friends in labour force	-0.18741	-0.20193
Parent's educational expectations	0.31926	-0.37288

Discriminant Function 1 (both Phase 1-Phase 3 and Phase 2-Phase 3)
 Grades-parental expectations and encouragement -
 father.

Table 4.3: Consistency and Sex

	<u>Sex</u>		
	Male	Female	
Consistent	46.6	53.4	44095 50.5
Inconsistent	50.8	49.2	43158 49.5
	42457 48.7	44796 51.3	87253 100.0

Table 4.4: Consistency and Grades

	<u>Grades</u>		
	B or Higher	C+ or Lower	
Consistent	52.3	47.7	43664 50.5
Inconsistent	35.2	64.8	42811 49.5
	38365 44.4	48110 55.6	86475 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

Table 4.5: Consistency and Father's Education

	<u>Father's Education</u>		
	Some Secondary or Less	Completed Secondary or More	
Consistent	52.6	47.4	39910 50.9
Inconsistent	57.0	43.0	38574 49.1
	43063 54.8	35420 45.2	78483 100.0

Table 4.6: Consistency and Friends in Community College

	<u>Number of Friends</u>			
	All or Nearly All	About Half	Only Few or None	
Consistent	4.6	21.7	73.7	41717 51.1
Inconsistent	5.8	26.9	67.2	39897 48.9
	4243 5.2	19804 24.3	57567 70.5	81614 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

Table 4.7: Consistency and Friends in University

	<u>Number of Friends</u>			
	All or Nearly All	About Half	Only Few or None	
Consistent	34.7	22.2	43.1	41717 51.1
Inconsistent	23.8	24.6	51.6	39897 48.9
	23978 29.4	19068 23.4	38568 47.3	81614 100.0

Table 4.8: Consistency and Friends Working

	<u>Number of Friends</u>			
	All or Nearly All	About Half	Only Few or None	
Consistent	19.4	12.9	67.7	41717 51.1
Inconsistent	20.9	15.6	63.5	39897 48.9
	16431 20.1	11591 14.2	53592 65.7	81614 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

Table 4.9: Consistency and Parental Expectations

	<u>Parental Expectations</u>			
	High School or Less	CAAT Degree	BA or Higher	
Consistent	26.4	20.4	53.2	36054 51.6
Inconsistent	31.2	27.0	41.9	33805 48.4
	20049 28.7	16481 23.6	33329 47.7	69859 100.0

Table 4.10: Consistency and Ability to Graduate from University

	<u>Ability to Graduate</u>			
	Yes	Not Sure Either Way	Probably or Definitely Not	
Consistent	66.8	19.6	13.7	43750 50.6
Inconsistent	58.7	26.4	14.9	42650 49.4
	54228 62.8	19806 22.9	12365 14.3	86399 100.0

N.B. The cells contain percentages and the number of respondents and overall percentage is given at the end of each row and column; the total weighted sample is 92734 but missing observations result in a smaller total.

CHAPTER FIVE

Summary and ConclusionsSummaryObjectives of second follow-up report

A telephone survey of former Grade 12 students conducted in November 1974 constitutes the third and final phase of a panel survey. Most respondents who were Grade 12 students when we first initiated the study in Spring 1973 were, in Fall 1974, studying in a university or community college, working full-time, or engaged in some alternate activity. This phase of the survey was implemented with several objectives in mind. In our first report we developed profiles or descriptions of respondents based primarily on their stated intentions for Fall 1974. Now we possess information that allows us to describe the same people in terms of their actual choices -- not their plans. At the same time we are able to continue our probe and further identify important factors that figure in the decision-making processes of adolescents who must choose among a complex and frequently bewildering assortment of alternatives.

We also sought to continue our investigation of the viable usage of intentions surveys for predicting aggregate behaviours. How reliable are adolescents' stated plans in Spring 1973 as a gauge of their activities in Fall 1974? Moreover, can we develop a classification scheme (employing social and social-psychological information) that adequately predicts at the individual level?

A third objective also involves a continuation of something we began in the second phase of our survey. There we explored the assumption that people who do not act in accord with previously stated intentions are socially and social-psychologically different than people who are consistent with their stated intentions. We continue to analyze these differences in this third report.

Source of the data

Trained interviewers of the Survey Research Centre at York University placed telephone calls to all respondents in the Spring 1973 survey. These interviewers were trained to ask a number of questions that pertained to present activities. This process was co-ordinated by a field supervisor employed by the Survey Research Centre. Several steps were taken to optimize the response rate and then, after attempting up to four unsuccessful telephone calls, a questionnaire was mailed to the respondent. In addition, and when possible, proxy information was collected. From the original group of 2,555 Phase One respondents, a total of 2,163 responded to Phase Three -- a response rate of 84.7%. If Phase Two is used as a comparative base, the response rate is 92%; while the overall response rate (i.e., people who responded in all three phases) is almost 70%.

Cross-tabulations are based on a weighted sample of 92,734. This weighted sample approximates the target population in Fall 1974 and permits the analyst to adjust for errors or deviations from the sample to the population.

Changes in Educational and Vocational Objectives: Decisions and Behaviours

Several tests for representivity were applied to the Phase Three sample. The effective number of respondents in Phase Three was 1,987 (effective in the sense that these were people who responded to all three phases). We discovered that the Phase One sample and Phase Three sample are essentially similar with respect to sex, family income and father's occupational prestige. Our contention that both samples were drawn from the identical target population (that is, former Grade 12 students in Ontario) received considerable support. Therefore, we may generalize our findings based on the Phase Three sample for the target population.

A number of facts emerge when individual and aggregate changes (changes that refer to a comparison of Phase Three respondents' activities with their intentions in Spring 1973) are analyzed: (1) Within a year and a half, more than 40% of the Phase Three respondents had altered their original intentions for the Fall of 1974 (2) Almost 40% of the Phase Three respondents were discovered to have chosen work roles in Fall 1974. However, only slightly more than 20% of respondents had planned on entering the work force in Spring 1973. This discrepancy is hardly a change of heart by those originally planning on assuming work roles; over 20% of the respondents who were employed in full-time jobs in Fall 1974 had originally planned on alternate activities such as university, community college or part-time studies (3) Over 35% of Phase Three respondents were attending university in Fall 1974; at the aggregate level there is little discrepancy between initial decisions and actual behaviours, in that nearly 38% had originally planned to enrol in a university.

At the individual level there is a sizeable change, since almost 10% who intended on enrolling eventually chose other alternatives (e.g., 4% took jobs) (4) Over 14% of Phase Three respondents were enrolled in community colleges in Fall 1974; at the aggregate level, there is an 8% discrepancy, since 22% had so intended in Spring 1973. Of those who initially planned on attending a CAAT, over 6% took full-time jobs and a further 3% opted for university enrollment. Yet it should be noted, that 2.8% of those who enrolled in community colleges originally planned on attending university (5) Less than 2% of Phase Three respondents elected to pursue part-time studies. This is in contrast to the 4.6% who originally planned on becoming involved in part-time studies. What's even more interesting is that only 0.2% of the part-time students had originally planned this involvement. Most of the others accepted full-time jobs and most part-time students originally planned on becoming full-time students in either university or community college.

Analysis and Classification: the utility of panel surveys

In this chapter we discussed the advantages and disadvantages of discriminant function analysis for analyzing and classifying the current (Fall 1974) behaviour of the respondents in our panel survey. One major objective was to explore the predictive capacity of the social science data we had collected. To what extent does this type of information help us in predicting adolescents' future educational and vocational choices? Since over 40% of the respondents had visibly changed direction since Spring

1973, the use of stated intentions was obviously less than useful in making such predictions. Would other information concerning the background and sociological experiences of respondents enable us to make more adequate predictions?

A technical discussion of discriminant function analysis is offered in Chapter Two. Following this discussion, the analysis was employed after respondents were properly classified into five groups: working full-time, attending university full-time, attending CAATs full-time, part-time studies and alternative activities. A total of 12 discriminating variables were employed in the final analysis, after some preliminary work had been performed. We found that the discriminating variables worked best at distinguishing two groups -- "work full-time" and "attend university". "Attend CAAT" and "alternate activities" are two groups that prove to be least distinguishable. For a detailed examination of the variables and functions, the reader should refer to Chapter Two.

That discriminant function analysis appears to be a powerful device for classifying future behaviour receives support from our analysis. We found that, once a statistical adjustment was made for a gross difference in group size, we were able to correctly classify 64.0% of the cases. With the use of the case's values on the twelve discriminating variables, we were able to correctly classify 64.0% -- the likely group membership of the cases (that is, we had 64.0% success in predicting whether Phase Three respondents would either work full-time, enroll in university or community college, etc.). We also indicated that not all of the assumptions and mathematics of discriminant analysis have been

worked out in this analysis. A proper and wise employment of the technique necessitates the careful attention of experts trained in the areas in which the technique might be applied.

A description of Grade 12 students: one-and-a-half years later

General description of all groups

The labour force, universities and part-time studies attract approximately equal proportions of males and females. Community colleges stand out in this regard in that almost 60% of the respondents who attended in Fall 1974 were female students. Universities clearly attract people who were academically superior in secondary school; almost 70% of the respondents now in university obtained B or higher grade averages in secondary school. Respondents who entered the work force, community colleges or selected an alternate activity fared relatively worse with reference to grade averages.

University students in our sample apparently enjoy an advantaged background in that a greater proportion of their fathers (60% of the fathers) managed at least to complete high school. Fewer than 40% of the fathers of working respondents can make a similar claim.

We also found that the social networks of respondents reflect or influence their present activities. Thus, university students primarily associated with friends who also planned on attending university and respondents who entered the labour force after high school also tell us that the majority of their friends made comparable decisions.

A strong association between present activities and certain types of social-psychological variables was located. For instance, we discovered that parental expectations concerning their childrens' future education play an influential role with reference to adolescents' present activities. Thus, 90% of the respondents currently in university believed that their parents expected them to attain a B.A. or higher degree; only 20% of the working respondents claimed their parents expected them to obtain B.A.'s or higher degrees.

Respondents vary in their perception of how much their parents encourage or discourage them in continuing their post-secondary education. As we might suspect, respondents now in university or community college were much more likely than working respondents to perceive their parents as strongly encouraging.

Even before becoming university students, respondents who were to choose this course were quite confident of their ability to graduate from university. Their confidence exceeded that of respondents who eventually entered the labour force or attended community colleges. Both university and CAAT students were also confident (more confident than respondents who chose alternative activities) of their ability to graduate from community college.

Working respondents

Many adolescents who assume full-time work roles do so for non-career reasons. Thus, more than 40% do so in order to "avoid school",

"provide time for decision" or because they "decided not to continue their education".

Few graduates encountered problems in locating their first job; only 9.3% reported that they had problems in locating jobs. Respondents work an average of 33.1 hours per week at moderately prestigious jobs. Very few, in fact, obtained highly prestigious jobs. This is not to say that respondents who entered the labor market are unhappy in their jobs. On the contrary, 80 % reported that they were either satisfied or very satisfied with their present work roles. Fewer than 10 % informed us that they were dissatisfied.

University and community college respondents

University or community college is a full-time affair for most former Grade 12 students. Less than 4 % of university and CAAT students attend on a part-time basis. Their reasons for attending vary but the majority are there either to optimize their own "self-improvement" for particular programs or because they visualize "financial rewards" as an eventual pay-off for completing their studies.

Students rely heavily on parents, savings from summer work and government loans and grants to finance their studies. After comparing students' intended financial source with actual sources we discover that proportionately fewer respondents relied on parents than planned and more dug into their summer work savings. Fewer had to rely on

personal savings than they had planned as of Spring 1973.

Students were asked to identify major pressures facing them while completing their studies. It is very interesting to note that almost 40% of the students claimed that they encountered no major pressures. Most of the remaining students told us that heavy academic workloads and grade problems constituted major pressures; only 4.6% specified financial difficulties as a major problem. Of the students who perceived pressures, nearly a third were quite strongly affected by these pressures.

Occupational classification of parents and respondents

In Spring 1973, over half of respondents' fathers were primarily employed in five different kinds of occupations; Managerial and Administrative posts; Sales; Product Fabricating, Assembling and Repairing occupations; Construction; and Farming, Horticultural and Animal Husbandry. Respondents' mothers were involved in very different kinds of jobs; over half were either in Clerical or Service positions.

Over half of male respondents expected in Spring 1973 to enter any of five different types of jobs. But, it is interesting to note, that proportionately fewer sons planned on entering Farming and Sales while proportionately more expected to work in Natural Science, Engineering and Mathematics.

Over 70% of the female respondents expected to enter either Clerical, Medicine and Health, or Teaching positions. Our analysis of male-female occupational differences lead us to conclude that women select from relatively fewer options than men. This is dramatically

illustrated when we look at working respondents in Fall 1974; over 70% of the females and slightly more than 10% of the males were working at Clerical jobs at that time. We also discovered a far greater gap between expectations and aspirations for women than for men. Women would prefer to select from a variety of professional, managerial or artistic occupations but do not realistically expect to do so. For example, 34.5% of women expected, in Spring 1973, to obtain Clerical jobs while only 18.8% specified a desire to do so.

The effects of obtaining a post-secondary education become evident if we assess students' occupational expectations and aspirations. Less than 10% of the female students expect to enter Clerical positions. This is in contrast to 70% of the working respondents who occupied such positions in Fall 1974 and more than 30% who expected to locate such positions when questioned in Spring 1973. The general influence of advanced education is also evident in the expectations of student respondents -- a far greater percentage of these students (in contrast with parents for instance) expect to enter either managerial or professional jobs after completing their degrees. Whether or not these expectations are realistic is questionable.

A profile of consistents and inconsistent

By Fall 1974, well over 40% of the adolescents had altered the decisions they had specified in Spring 1973. This changeability phenomenon, once again, presented the opportunity for us to analyze groups of consistents and inconsistent. We were thus able to re-test the

hypothesis that adolescents' decisions are developed within a knowable context; by gaining knowledge of the context we may better understand why and how these decisions are made. The additional passage of time (in Phase Two the elapsed time was 6 months while in this analysis the elapsed time is 1 1/2 years) also gives us the opportunity for testing the "durability" or "lastingness" of sociological and social-psychological variables.

Our classification procedure resulted in two measures of consistency. One measure relates a person's intention in Spring 1973 with his actual behaviour in Fall 1974; the second measure relates a person's intention in Fall 1973 to his activities in Fall 1974.

A profile of consistent and inconsistent adolescents emerged after our analysis was completed.¹ Consistent adolescents are, generally, more likely than inconsistent adolescents (that is, adolescents who act in a manner not in accord with previously stated intentions) to: (1) Be female (2) Achieve higher standards of academic excellence (3) Come from families where their fathers have obtained higher levels of formal education (4) Possess friends who are more university-oriented than involved in either community college or full-time work roles (5) Perceive their parents as having at least university level (B.A. degree) expectations for them and (6) Express a greater confidence in their ability to graduate from university.

Discriminant function analysis was employed to provide some notion of the relative discriminating power of the variables used in the consistency analysis. We discovered that the rank order in importance of

¹ This profile is based on cross-tabulations using both measures of consistency.

the top three variables is identical for our Phase One-Phase Three and Phase Two-Phase Three consistency analysis. In descending order of importance they are: grades, encouragement - father and parental expectations.²

We also arrived at certain conclusions concerning the influence of "time" in a consistency analysis. Our finding indicated, for instance, that sex is more influential in the short run than the longer run. The influence of encouragement by father, however, is more than twice as strong in the long run than in a short-run consistency analysis. This analysis suggested that, in making choices, adolescents either define or are influenced by a set of considerations. The time-frame surrounding the choice also becomes influential, in that the appropriateness and impact of any one variable or consideration depends on the length of time between a choice and the subsequent implementation or rejection of the choice. Time itself becomes important, in terms of the experiences and situations the individual may encounter or be forced to confront.

Conclusions

In the introduction to this report we raised two questions. They are: (1) Of what practical utility is an intentions survey? (2) What else can be done to best serve various sectors of the population and

² This differs somewhat but not drastically from the results reported in our Phase Two report. The top three variables were: ability to graduate from university, grades and parental encouragement. This ordering applies to the consistency between intentions (Spring 1973) and behavior (Fall 1973).

educational decision-makers? These questions serve as a focus for our concluding comments.

Our research findings across Phases One, Two and Three definitely indicate that the educational and vocational decisions adolescents make are part of an on-going process. Though situational and chance factors play a role, we can learn quite a bit from knowing something about the sociological and social-psychological composition of an adolescent's environment. Each adolescent encounters and uniquely defines his personal environment and the latter strongly influences the nature and direction of educational choice. We discover, for example, that socio-economic origin, sex, social networks, parental expectations and one's self-conception figure importantly in choosing between working full-time or studying at a post-secondary institution. Through our analysis we also identified the apparent pecking order (in importance) of several discriminating variables. Hence, parental expectations regarding respondents' level of formal education crop up repeatedly as influential factors in choosing between critical alternatives. This, we suggest, is an illustration of one major practical benefit of an intentions survey. Educators who place undue significance or emphasis on schooling and schools may misdirect their energies. When the educational expectations that parents transmit to their children are coupled with emotional support, they act as extraordinarily strong forces in aiding the development of educational and vocational objectives among adolescents. The need to include parents in the educational socialization of the young is thus obvious.

Though we have identified a number of key variables which presumably relate to how decisions are made and who is more likely to select specific alternatives, we suggest that several important questions still remain unanswered. Let us raise and consider a number of these: (1) To what extent have other intentions surveys conducted in Ontario, elsewhere in Canada and in the United States identified similar or different kinds of dimensions in their effort to explain decision-making processes among adolescents? Also, how have these other surveys been employed by governments and/or educators? (2) Although we seem to have identified a number of important variables no real effort has been made (except implicitly) to causally interrelate these variables identified. What theory or theories presently exist that serve to indicate how our variables are causally interrelated? A large literature on educational choice and vocational choice exists and can be related to the data we've accumulated. The task is an important one and does have practical utility. This utility derives from the fact that information such as we have amassed is worthwhile only if placed in perspective. A perspective (i.e., a set of ideas) gives meaning to an otherwise meaningless occurrence. Too often we find that a gulf exists between educators, academics and government officials. Each group may possess a particular ideology and hence find it exceedingly difficult to appreciate and accept the trained capacities of non-group members. Academics who develop specific perspectives or theories are not infrequently accused of being "academic" and even irrelevant. This accusation may be entirely valid

in particular instances. But academics are trained to develop and offer interpretations. If educators and government officials with policy-making responsibilities work in conjunction with academics, then a more holistic and plausible understanding of, frequently, puzzling events could be achieved. Without this co-operation, the rapidity of social change and the complexities that typify our urban society will surely increase the gap between problem identification and the effectiveness of solution(s).

(3) It is admittedly true that school systems can play a limited role in re-structuring our society. However, given that many of the key discriminatory variables in our survey were social-psychological (e.g., self-conception) in nature, school agents could have some limited but still powerful influence. To what extent are such agents (e.g., counsellors, teachers) aware, themselves, of how and why adolescents make decisions they make? If we assume that the development of adequate self-evaluation is a process that begins early in an adolescent's life, how do school agents "tune in" and affect the process? Is there any sense of concerted and integrated effort by agents at elementary, secondary and post-secondary levels?

(4) Our findings indicate that sex plays an important role in influencing educational and vocational choice. The stark differences in occupational expectations and aspirations among male and female respondents are strong evidence for concluding that feminists have not yet won their battle. How can we explain the fact that educational and vocational choices depend, in part anyway, on sex?

What role do different levels of our school system play in the choices made by male and female students? Do schools generally attempt to combat or support traditional societal expectations concerning the careers of men and women? (5) In another paper we raised the importance of assessing the impact of ethnicity on educational and vocational behaviour.¹ We were able to demonstrate that ethnicity tends to be closely associated with certain characteristics of adolescents (e.g., their place of residence, grade averages). It is largely this association that explains variations in educational and vocational plans. Given that many schools are plagued with problems of how to integrate ethnic minorities into the mainstream of Canadian society, an intentions survey is useful in this, as an analysis can reveal important questions. For instance, what relationships exist between ethnicity and academic achievement? How does a detailed knowledge of a group's culture aid in improving the achievement level of that group?

In addition to raising questions, we wish to recommend several concrete proposals. These general proposals are meant to extend the practical benefits of intentions surveys and focus discussion among interested educators and government officials who are continually responsible for finding effective means that will best serve a heterogeneous audience.

¹ Paul Anisef, "Consequences of Ethnicity for Educational Plans Among Grade 12 Students" in Aaron Wolfgang (ed.), Education of Immigrant Students, Issues and Answers, Symposium Series 15, the Ontario Institute for Studies in Education 1975, pp. 122-136

The first proposal involves the use of discriminant function analysis for classifying or predicting future behaviour. This technique is explained in Chapter Two and seems a powerful predictive method. We propose that discriminant function analysis be examined more fully by expert statisticians and forecasters. If such an examination should support its viability as a predictive tool, discriminant analysis should be re-tested on: (1) A fresh sample of Grade 12 students and (2) Groups of people who are presently working, studying full-time, etc. People in these groups should be other than respondents in our panel survey.

The second proposal is linked with our first one. If discriminant analysis proves a highly effective method for predicting behaviour, it can be wisely employed by counsellors in secondary schools. Counsellors, who are made increasingly conscious of the variables employed by adolescents in making educational and vocational decisions, can employ this information in advising students. Certainly guidance counsellors should not impose a classification upon their clients. However, the classification and the variables which compose such classification may stimulate dialogue and challenge both counsellors and students.

Our work, thus far, is an initial first step in analyzing the general level of preparedness of adolescents for a variety of roles. What values, attitudes, capabilities and motivations are required for the successful implementation of post-adolescent roles? Furthermore, what criteria can we and will we use in measuring success? Also, to

what extent is "preparedness" a function of individual level considerations? To what extent is "preparedness" a reflection of adequacies or inadequacies on the societal level? For instance, if Student X fails at university, do we attribute this failure to the characteristics of Student X and/or assume that society somehow failed Student X? Obviously, many of the questions already raised in this report involve the problem of socialization for post-adolescent roles. Sex, ethnicity, self-conception, social class etc., are but a few of the dimensions that must be considered and continually studied. As we mentioned previously, there are many works that directly or indirectly address this problem. I would propose that the provincial government set up a research and development agency whose major function would be to consolidate continued research in the general area just described. This consolidation would involve attempts at retrieving and classifying information, co-opting and employing the resources of elementary, secondary and post-secondary institutions. This agency would act to reduce redundancies in research and provide the necessary information for developing important policy decisions. By serving as an information center, this agency could stimulate additional dialogue and help develop relationships among scattered but valuable personnel in various educational fields.

INSTITUTE FOR BEHAVIOURAL RESEARCH
SURVEY RESEARCH CENTRE

667-3022 AREA CODE 416



YORK
UNIVERSITY

4700 KEELE STREET,
DOWNSVIEW, ONTARIO M3J 1P3

SURVEY OF ONTARIO GRADE 12 STUDENTS

SAMPLE DESIGN: PROJECT 141

TABLE OF CONTENTS

	<u>Page No.</u>
Appendix I.	1
Sub-Appendix A.	40
Sub-Appendix B.	54
Sub-Appendix C.	57
Sub-Appendix D.	62
Sub-Appendix E.	76

Oleh Iwanyshyn

Sampling Consultant

December, 1975.

TABLE OF CONTENTS

(Continued)

	<u>Page No.</u>
Appendix II	90
Appendix III	97

APPENDIX I

POPULATION

The purpose of this survey was to obtain a representative sample of 1972-73 Grade 12 students in Ontario and monitor their academic attitudes and aspirations by means of a self-administered, confidential questionnaire. The questionnaire consisted mostly of closed-end items and took, on the average, a half hour to complete. The self-administration was conducted in groups of selected students at the selected schools. The complete process was supervised by a field interviewer employed and trained by the Survey Research Centre, York University.

The first important distinction that must be made about surveys is that ideally the surveyed population should be identical to the target population; in this case, the 1972-73 Grade 12 students in Ontario. In practice, the two populations seldom overlap completely. In this case, the reason was that the target population element, the Grade 12 student, was not defined in a clear, unambiguous, uniform way. This uncertainty was, of course, transmitted to the selection of the sample.

A definition shared by many schools stated that eligible Grade 12 students were those taking enough course credits in the 1972-73 academic year to have the possibility of matriculating at year's end. It was felt that this definition was too narrow, in that it may not have included into the survey population those students who were not taking enough course credits to matriculate and yet for all intents and purposes were Grade 12 students; i.e. most of their course load consisted of Grade 12 level subjects. This type of error deflates the survey population in relation to the target population. Conversely, the survey population may have included students who were effectively Grade 13 students and yet were carrying a few Grade 12

subjects necessary for their Grade 12 matriculation: (Some of the students in the latter group may have been included in the sample in the ineligible component of non-response). This type of error inflates the survey population and both types introduce bias into the sample.

Clearly, the problem of definition is a serious one and is the direct result of the relaxation and broadening of the curriculum structure in the high schools. Formerly, the natural time unit of study was an academic year. Hence, it was a fairly simple matter to ascertain whether a student was in Grade 12 and taking Grade 13 subjects, or in Grade 13 and taking Grade 12 subjects. But the importance of the year as the natural unit is being de-emphasized, and added emphasis is placed on each student's unique rate of scholastic development instead. In effect, therefore, the natural unit is now being officially recognized as the student himself/herself. This change in policy offers the student greater flexibility in choosing a course of study by providing (a) a much wider spectrum of subjects and (b) a credit system whereby each student may plan a course of study that is suited specifically to his/her needs and potential at the time.

One important quantitative result obtained from the survey relates to the total number of students in the survey population. It was assumed that between 1971-72 and 1972-73 school years the total Grade 12 population in Ontario would grow by 3.2%. In fact, the population total of the sampled schools (97 in all) was 13% below that of the same schools in 1971-72 on the basis of the Secondary and Private School Enrolment Reports published yearly by the Ministry of Education, and 5% below the preliminary enrolment data based on the 1972-73 Principals' Reports. In

terms of the projected 1972-73 enrolment, the totals were respectively 16.2% and 8.2% lower. Since the sample of selected schools represented a predominance of large schools over small schools, a better estimate of 1972-73 total enrolment was obtained by calculating the estimate based on the units of selection (approximately equal groups of students) of the sample. The estimated population total within one standard deviation, was $96,582 \pm 2566$ students, a decrease of $11\% \pm 2.3\%$ below the 1971-72 value.

There are two decrements to account for. First, there was the general decrease of the total 1972-73 Grade 12 population (three different estimates ranging from 13% to 5%) and secondly, the estimates of the population total from the enrolment lists of the selected schools were approximately 8% and 6% smaller than the figure obtained from the 1972-73 Principals' Reports.

Assuming that the criteria for defining a Grade 12 student remained unchanged between 1971-72 and 1972-73, then possibly the main reason for the latter differences was the different times of the academic year when the population was monitored. The monitoring in the Principals' Reports occurred primarily at the beginning of the school year, whereas the sample estimates were monitored near the end of the school year. A graphical illustration of the population monitors is included in Fig. 1. (Page 56). It is conjectured that the differences were attributed to students who had dropped out for various reasons. Their presence was assumed in the target population. Hence, their absence in the sampled population may signal the existence of a serious bias in the sampled population. It is noted that the sample obtained a 3% non-response associated with drop-outs; no attempt was made to recover this component.

Since one of the purposes of this investigation was to ascertain the reasons for the changes of academic goals and attitudes, the absence of possibly the most discontented elements may have severely restricted the prognosticative potential of certain variables in the study. And finally, since the size of the survey population was dependent on time, a more appropriate period of the academic year should be considered for fielding this type of survey in future.

SAMPLE SIZE

In general, the sample size is determined from a trade-off between the survey cost and the precision required from the sample estimate. These considerations resulted in the decision to sample approximately 3.2% of Grade 12 population, or, in absolute terms, a sample size of 3600 students. This number incorporated an expected 15% non-response together with a 3.2% growth rate from the 1971-72 Grade 12 enrolment records. The latter were used as an approximation to the 1972-73 population distribution. The 3.2% growth rate resulted from the assumption that the overall growth rate remained uniform from 1970-71 through to 1972-73. The acquisition of more up to date enrolment, however, indicated that the population decreased in size. This situation emphasized the need for an accurate population listing, particularly at a time when the school system is undergoing rapidly changing enrolment patterns. The actual number of selected students was 3059: i.e., a decrease of 15% from the projected sample size.

Simple random selection formulae provided a rough approximation of the precision attainable. For a sample size of 3600 students, an estimated sample proportion in the 95 - 5% range has a standard deviation of approximately 0.36%; a proportion in the 50 - 50% range has a standard deviation of approximately 0.82%. Note, however, that the relative precision, as defined by the coefficient of variation, of the 95 - 5% proportion is 7.8% and is larger than the coefficient of variation of the 50 - 50% proportion, which is 1.6%.

SAMPLE DESIGN

The creation of a technique by which a sample of students can be selected from the survey population, in a manner that optimizes the estimates of variables both in terms of economy and precision is called the sample design.

For purposes of precision, it is common to divide the survey population into subsets that are referred to as strata. The idea behind stratification is to find natural or artificial divisions in the population, such that a variable of interest shows relatively less variation within strata than between strata. Note that, if one of a set of variables is stratified along this criterion, it does not automatically follow that all of the other variables will be optimally stratified: i.e., that its variation within, to its variation between, is a minimum. Thus, we see that a further condition on stratification is the type of variable studied and by implication the type of estimators used in the analysis, e.g. ratio, mean. Generally, it can be stated that stratified sampling results in lower estimates of variance than simple random sampling.

For purposes of economy, it is also common to divide the total population into sub-sets, also known as "clusters". Clusters differ fundamentally from strata in that a variable should encompass as much variation in its distribution within the cluster as it has in the population. Ideally, each cluster should exhibit as much variation as its parent population for all variables. The latter situation, of course, refers to a very specialized clustered population in which each cluster of elements is simply a microcosm of the total population, a situation seldom realized in human populations. However, the ideal situation illustrates that inferences made on the basis of any one cluster will be valid for the

population as a whole, and herein lies the economy of the method. In realistic situations, however, clustering criteria are often determined on the basis of natural or artificial divisions within which variables are often strongly correlated. Thus, one cluster does not represent a good facsimile of the total population and more clusters have to be sampled in order to arrive at sufficiently precise inferences. Note that, as before, limitations on clustering exist as they did with stratification, e.g. optimally clustering along one variable may leave other variables relatively homogeneous within the cluster.

In the present study we have combined both stratification and clustering in the sample design in an effort to optimize the costs vs. precision tradeoff. The specific manner in which we have clustered and stratified will be elaborated in the sections entitled "Sampling Frame" and "Stratification".

Finally, a simple technique of estimating the variance of an estimate was incorporated into the design. This was done in lieu of the exact expression which is much more cumbersome. The approximation method used is called replicated sampling and involves the selection of two equal and independent samples. Each of the samples provides an independent estimate of the variate e.g. sample means \bar{y}_1 and \bar{y}_2 , and together the estimates can be used to generate an estimate (with one degree of freedom) of the variance of the composite mean $\bar{y} = \frac{1}{2} (\bar{y}_1 + \bar{y}_2)$. An estimate of the variance is defined by the expression $\text{Var} (\bar{y}) = \frac{1}{4} (\bar{y}_1 - \bar{y}_2)^2$. In the actual computation of variance estimates, a more precise technique incorporating replicate samples was used. A full description of this technique is included in the section entitled "Sampling Error".

SAMPLING FRAME

Before the selection of the sample, it was necessary to divide the total grade 12 population into clusters called Primary Sampling Units (PSU's). One possible sampling unit was the student. Hence, if a random sample of 3600 students was selected, it is not improbable that the students may have been distributed among most, if not all, of the more than 800 Secondary Schools in Ontario. Needless to say, this type of sampling frame would have incurred the heavy financial burden that is associated with the field work. Indeed, financial resources necessitated the restriction that the sample of 3600 students be distributed among approximately 100 schools. This restriction, nevertheless, provided a clue about the size of the sampling unit. Suppose that, instead of a single student unit, the PSU was defined as a grade 12 class. Then, it is apparent that if a sample of classes was selected such that the total population within those classes amounted to 3600 students, the number of Secondary Schools included in the distribution of classes would be much smaller than with a primary selection of student units. The PSU's, whatever their size, must also satisfy the conditions that they be mutually exclusive and collectively exhaustive: i.e. each student must be uniquely defined within the frame and the aggregate of the students within the PSU's must be equal to the total grade 12 population.

Instead of using natural class units of varying sizes, the average grade 12 size was set at 32 students. Although the choice of 32 students as the PSU was in part arbitrary, there were several considerations that suggested upper and lower bounds about this number. First, the modal size, of a grade 12 class is in the range of 30-40 students. The same range is convenient for a field interviewer to supervise the self-administered

student questionnaires. Finally, it seems a reasonable observation (as originally suggested in the Sample Design Report by Dr. D. Dale for the Porter-Blishen study) that the product of three years of educational conditioning within a high school environment would tend to homogenize academic attitudes and plans. Hence, the PSU should be made as small as possible but consistent with the other constraints, in order to reduce the sampling variance (by selection of a greater number of smaller homogeneous PSU's).

As mentioned earlier, the 1971-72 Public Secondary School and Private Secondary School Enrolment Report (based on Principals' Reports) published by the Planning and Research Branch of the Ministry of Education was used as an approximation of the 1972-73 grade 12 population. In effect, it established the sampling frame which provided the basis of sample selection. The report broke down the secondary schools in Ontario into the 10 Educational Regions. The regions, in turn, were broken down into county, district, borough or municipal school boards. Within the school boards the report provided data on the name, location, and enrolment of each school.

There were certain deficiencies associated with the use of a dated sampling frame, in addition to the uncertainties present in growth rate predictions. These related to the inclusion of ineligible elements and the exclusion of eligible elements of the population. The inclusions consisted of schools that did not have a grade 12 as defined in the broadest terms, e.g. schools for slow learners, special types of vocational schools. Another possibility was that the grade 12 in a school or the

whole school had ceased to operate for various reasons. This type of misinformation would result in an increase of the variance of the sample estimates. The exclusions consisted of schools that commenced operations or that initiated a grade 12 in the 1972-1973 academic year. This type of error, if it were significant, could introduce a bias into the sample estimate. The fact that the frame population was only a year old made the latter possibility unlikely.

The mechanics of distributions of the PSU's among the population were as follows. The number of class units allocated to a school was defined by the ratio

$$U_i = \frac{\text{the total grade 12 population of the school}}{32}$$

rounded off to the nearest integer. This may also be viewed as the creation of U_i artificial class units whose size was approximately 32 students each. The grade 12 population within each school was provided by the 1971-72 Enrolment Report. The number of class units allocated was, of course, proportional to the size of the school. All the units were then enumerated and the total number of units multiplied by 32 obtained (within a slight correction due to round off error) the total grade 12 population. The total number of PSU's allocated in this manner was approximately 3400.

STRATIFICATION

Several considerations guided the manner of stratification of the clusters (PSU's). Of primary importance was the decision to maintain a basis of comparison between the Porter-Blishen study and the present one. This meant that in both studies the general schema for stratification had to be similar. In the absence of any promising quantitative stratifying variables, it was decided to adopt the fairly general criteria that students' academic aspirations and intentions were somehow related to the size and the degree of urbanization of the school boards. This resulted in the creation of four strata: the first, for obvious reasons, includes only Metro Toronto; the second includes other large metropolitan areas in Ontario; the third includes smaller cities, towns, and urban fringe areas; and the fourth includes the remaining Boards of Education that were mainly rural in character. The breakdown of the Boards of Education, by stratum, is listed below:

STRATUM

01

BOARDS OF EDUCATION

Etobicoke, Toronto, York, East York, North York, Scarborough, and the private school boards in these jurisdictions

02

Sudbury, Windsor, London, Waterloo County, Hamilton, Regional Municipality of Ottawa-Carleton, and the private school boards in these jurisdictions

STRATUM

BOARDS OF EDUCATION

03

Lakehead, Sault Ste. Marie, Nipissing,
Timiskaming, Regional Municipality of Niagara,
Halton County, York County (excluding Metro
Toronto) and the private school boards in these
jurisdictions

04

All remaining Public and Private School Boards

Consideration was given initially for substratification (within the strata) along certain interesting variables related to future university enrolments. In the end, it was agreed that certain substratum sample sizes may have been too small to bear the weight of a prognosticative analysis. However, the sample design lends itself to a post-stratification of the survey data, a viable strategy that can be adopted in the analysis.

SAMPLE SELECTION

The 1972-73 sampling frame consisted of a total student population of approximately 108,600 or 3,400 PSU's. Each school was allocated a number of PSU's such that the probability of selection of a school was proportional to its size. Two independent samples of PSU's were selected, such that together they represented 3.2% of the frame population (approximately 3,500 students or 109 PSU's).

The method of selection employed is termed proportionate sampling. Its main feature is that the ratio of the sample size in each stratum to the stratum size (in terms of PSU's) is equal to the ratio of the total sample size to the total population size. Sampling with proportionate allocation is generally a good scheme to follow if a relatively high degree of precision with population estimates is required, and if the stratifying variables are not strongly correlated to the within-stratum characteristics.

The present design required equal samples and this implied a selection without replacement of 1.6% of the population of PSU's for each sample. It follows that the probability of selecting each sample is about $1/62$; hence each PSU obtained a weight of 62. Within each stratum the sample was obtained by a random selection of the proportionately allocated number of PSU's. A systematic selection of PSU's within strata was rejected on the grounds that the interval was too coarse to permit the selection of more than one PSU per school, regardless of the size of the school. This restriction unduly limits the number of combinations that are potentially available by simple random selection within strata.

The total number and identification of the students belonging to a selected PSU were determined in the following manner. The selected PSU's specified the selected schools. The total number of schools selected in the sample was 99. Within a school, the subsampling ratio defined by the ratio of the number of selected PSU's to the total number of PSU's allocated to the school, was applied to the list of eligible students within the school. The subsampling within the schools was systematic with random starts provided.

In the initial stages of the survey the enrolment lists from the selected schools indicated that a severe shortfall in the sample size was to be expected. This fact, together with an expected 15% non-response and the possibility of a number of non-cooperating schools, pointed towards a dangerously low level of response. Survey costs and time considerations precluded a reduction of non-response by call-backs. The following technique was employed to reduce the type of non-response that was specifically due to unforeseen, seemingly random occurrences such as sickness, truancy etc. This type of non-response was termed temporary absenteeism. An average of four systematically random selections per selected PSU were made in each school. The selections in this subgroup became eligible as substitutes for temporary absenteeism in the selected PSU. If a PSU resulted in no temporary absenteeism the substitutions were, of course, deleted from the sample. In moderation and for very selective types of non-response (and in a pinch) this technique, although not as satisfactory as call-backs, is obviously more satisfactory than duplication of completions (responses) within PSU's or weighting. Without substitutions

the response rate was 79.5%; with substitutions it was 86.6%. Hence, the total non-response was reduced by 7.1%. Including the effect of a 3.2% growth rate, the total number of students selected was expected to be 3600 (sampling frame take). Unforeseen shortfalls reduced this number to 3059 students (the school list take). Of this total, 108 students were ineligible or had dropped out, 396 were non-respondents and 2555 remained in the respondent group. Two selected schools refused to participate in the survey. A more detailed numerical breakdown of non-response is included in the Final Field Report (Sub-appendix A)*.

* The Final Field Report was compiled by Ms. Joan Roberts, Sampling Supervisor of the Survey Research Centre.

FIRST FOLLOW-UP SURVEY - PHASE II

A follow-up study of the respondents in the original survey was carried out in November 1973. The purpose of the follow-up was to monitor the consistencies and inconsistencies in the attitudes and aspirations of the original group of Grade 12 respondents. To distinguish between the original and follow-up surveys, the former will be referred to as the Phase I survey, and the latter as the Phase II survey. The method of data collection was by telephone. The telephone survey was selected over alternate methods for several reasons. For the type of information requested and population sampled, the telephone method was the quickest and most economical in terms of the high response rate that was required in Phase II.

The telephone survey was conducted both from the Ministry of Colleges and Universities and from the interviewers' homes - all long distance calls from the Ministry and local calls from interviewers' homes.

Fourteen interviewers and one supervisor were required over a two-week period.

The calls were made week-day evenings, excluding Fridays, from 6 p.m. to 9:30 p.m. and Sunday afternoons from 12 noon to 5 p.m.

Up to four attempts were made to contact each of the 2555 students. After one phone call to each student, 1124 questionnaires were completed. The second call obtained 579 additional completions; the third, 270 and the fourth, 183 for a total of 2156 completed questionnaires.

From the original group of 2555 Phase I respondents, a total of 2156 responded to Phase II, a response rate of 84.4%. From the total group of non-respondents, 253 students had no telephone numbers where they could be

reached.

The remainder of the non-response, 146 students in total, for one reason or another could not or would not be interviewed. A more detailed numerical breakdown of the respondents and non-respondents is included in the Final Field Report - Phase II (Sub-appendix D)*.

*The Final Field Report - Phase II was compiled by Ms. Joan Roberts, Sampling Supervisor of the Survey Research Centre.

SECOND FOLLOW-UP SURVEY - PHASE III

A second follow-up study of the respondents in the original survey was carried out in the fall of 1974 (October - November). Again, the purpose of the survey was to monitor the relationship between the respondents' career aspirations and their actual realizations as indicated in the Phase I and Phase II surveys. The second follow-up survey, to be referred to as Phase III of the study, was mainly conducted by means of telephone interviewing. In order to secure a respondent, up to four telephone contact attempts were made. In view of the fact that a year had passed since the last attempt was made to contact Phase I respondents and that during the year many of the students had graduated from secondary school and were undergoing increasing degrees of social dispersion, it was suspected that the response rate would be reduced below 84%, the Phase II rate. The importance of achieving a high response rate in Phase III is underlined by the fact that if the Phase III response rate among Phase II respondents were as high as 84%, the overall response rate over the three phases would be only 61%.

Several steps were taken to optimize the response rate. Instead of contacting only those students respondent in Phase II (a total of 2156), it was decided to contact all students respondent in Phase I, a total of 2555, in the hope of picking up some of the 399 students that were not respondent in Phase II. After unsuccessfully attempting up to four calls to contact a student, a survey questionnaire was mailed to these students. In addition, and when possible, proxy information was collected. The parents, brothers, sisters, etc. who were resident at the students' addresses were the usual sources of proxy information. In any case, the survey questionnaire was mailed to the selected students even

when proxy information was secured. Two reasons motivated the latter procedure. The first was that proxy information was secured on only a partial set of the items on the Phase III questionnaire. Proxy respondents were asked only those items about the true respondents that could be competently answered by them, i.e., questions relating to the objective status of the true respondent. Therefore, at least to that extent, the proxy completions are inferior to the true respondent completions. The second reason was to check out the validity of this procedure for increasing the response rate by comparing the distribution, variable by variable, of a number of proxy completions for which the true respondents had mailed back a completed questionnaire. This comparison is made in the following section. The net effect of these procedures was that the overall response rate over the three phases is almost 70%.

As in Phase II, the Phase III survey was conducted mainly from the offices of the Ministry of Colleges and Universities; local calls were made from interviewers' homes. The latter location was more convenient for the interviewers and resulted in reduced field costs.

Eighteen interviewers and one supervisor were employed over a three-week period.

The calls were made on week-day evenings, excluding Fridays, from 6:00 pm to 10:00 pm and Sunday afternoon from 11:00 am to 4:00 pm.

Occasionally, when French-speaking respondents were encountered, the interview was conducted in French by the Centre's bilingual interviewers.

From the original group of 2555 Phase I respondents, a total of 2163 responded to Phase III - a response rate of 84.7%. The response rate

computed in terms of the Phase II completions is 92%, indicating that the more extensive measures employed were highly successful. Of the 2163 completions, 1620 were obtained from respondent interviews over the telephone, 163 were proxy telephone completions and 380 were collected from the mail-out. It is worth noting that 117 of the 2555 Phase I respondents had no listed telephone numbers and addresses. Thus, the practically obtainable groups of Phase I respondents totalled 2438, yielding a response rate of 88% (compared with 84.7%). Also note, that the total of 2163 consists not only of students respondent in Phase I, II and III but also some students that were respondent in Phase I but were not respondent in Phase II. There were 176 students in the latter group, representing approximately 45% of all non-respondents in Phase II and 8% of the total of Phase III respondents.

From the total group of 392 non-respondents (including the 117 who had no chance of being reached), 202 did not respond to the telephone and/or the mail out, 54 had moved, 15 refused and 3 did not respond for other reasons.

A more detailed (by school) breakdown of the respondents and non respondents is included in the Final Field Report - Phase III (Sub-Appendix E).*

* The Final Field Report - Phase III was compiled by Ms. Joan Roberts, Field Supervisor of the Survey Research Centre.

VALIDITY OF PROXY DATA

As indicated earlier, a number of completions were collected from the true respondents and their proxy informants. Assuming no collusion between the two, an item by item comparison of the two data sets provides a simple and interesting method by which the validity of the proxy procedure can be tested. It should be emphasized that the validation method is restricted to those items on the questionnaire that provide a fairly general, objective description of the current status of a respondent.

Nine pieces of information^{*} were collected from the proxy: the respondent's sex, marital status, employment status, occupation, educational activity, student status, name of school, and other current activities. It was felt that this sub-set of items had the greatest chance of eliciting an accurate proxy response. Questionnaire items that were not asked were those requiring fairly specific, objective information or were of a subjective nature, e.g. motivational and judgemental items. Examples of the type of items not asked were: role of secondary school education on current activity; reason for working (if working); current job satisfaction; job expectations; pressure of academic studies; working hours per week; program of study; number of credit courses, etc. Although from a validity analysis point-of-view, it would have been most interesting to have an item-by-item comparison across all questionnaire items, it was decided not to place unreasonable demands on the proxy and so jeopardize the response to the general, objective items.

The item-by-item analyses provides some general observations. First, it was found that after excluding missing and inappropriate response cases the percentage of "don't know" replies on the part of proxy respondents

* The questionnaire items in Appendix II with an asterisk beside them were those selected for proxy respondents.

never exceeded 2.6% and usually was in the vicinity of 1.0%. Secondly, the chi-square values computed for the cross-tabulation of proxy and respondent replies on each item indicate that the replies are very significantly correlated (i.e., $p < .01$).

Thirdly, an index of the strength of association, as measured by Cramér's V, indicated that the magnitude of the correlation can vary substantially from item to item - from almost 1.0, indicating a perfect correlation, to 0.46 indicating a moderate correlation (0.0 indicates the absence of a correlation). The item relating to a respondent's other activities at the present time, e.g. apprenticeship, grade XIII, housewife, travelling, etc. was excluded from the analyses, since somewhat different criteria were used by interviewers in deciding which sub-class of respondents was eligible to reply to this item when interviewing proxies and when interviewing the true respondents.

When looking more closely at specific items, it was found that the highest correlation ($V = .98$) occurred with the "name of school" items that was asked of the sub-class of respondents who were full-time or part-time students. In addition, the item was closed-end. Both factors were probably instrumental in causing a high correlation - only 2 out of 116 cases were in conflict. The lowest correlation was observed with the "occupation" item that was asked of the sub-class of respondents who were employed full-time or part-time. The item consisted of two questions relating to type of work and place of employment. The answers to both questions were necessary in order to assign an occupational level. The occupational levels were those defined by the Blishen occupation index^{**} which covers a numerical

^{**} Bernard R. Blishen and Hugh A. McRoberts, "A Revised Socio-Economic Index for Occupations in Canada", Canadian Review of Sociology & Anthropology, May, 1975.

range of approximately 20 to 80. The cross-tabulation was aggregated over 6 occupational categories - less than 20, 20-29, 30-39, 40-49, 50-59, and greater than 60. Only 45 out of 85 cases were not in conflict. The large variance in each of the occupational categories is, for the most part, explained by the inherent lack of precision in going from a subjective, qualitative occupation description to an objective, quantitative measure. This lack of precision is also in evidence during the coding procedure for the item. If the next higher and lower proxy categories are combined with the correct respondent category, then 75 out of 85 cases are coincident. The item suggests that for opened-end variables only a coarse level of discrimination should be required of the proxy respondent.

The advantages of closed-end items consisting of few categories (often only dichotomies) are brought home by the observation of the highest correlations with these items. For example, the "educational activity" item consisted of a yes-no response set. It produced a correlation of $V = .89$, the result of 13 conflicts out of 216 cases. The "sex" and "marital status" items both consisted of essentially two response categories and had a correlation of .94 and .90 respectively. It should be mentioned that the correlations were to some extent reduced by data processing errors but it is difficult to separate out this source of error.

For correlations of items in the intermediate range (V in the vicinity of 0.7 to 0.8), it was interesting to note that proxy responses associated with student status were more highly correlated than proxy responses for employment status. In the former case, there were 5 out of 116 conflicts; in the latter case there were 27 out of 216 cases. This

observation suggests a greater knowledgeability on the part of proxies about persons who were involved in formal educational activities than about those persons who were employed.

It is reasonable to conclude that for specific types of items the proxy procedure has a sufficiently high degree of validity and can be used to augment the response rate. This procedure takes on added importance in panel studies where the overall response rate is a product of the response rates for each panel.

ESTIMATION PROCEDURE

Each sample of primary sampling units was randomly selected from the frame population with an equal probability of $1/62$. Hence, each unit has associated with it a weight of 62; i.e. each student within a unit represented 62 students in the frame population. In fact, however, the frame sample seldom conforms exactly to the sample from the actual survey population. For example, some PSU's selected in the frame population may not be available in the survey population. Other PSU's may consist of appreciably more or less than 32 eligible students, the approximate size of PSU in the frame population. Also in many selected PSU's, some eligible students may not be present on the day of the administration of the questionnaire. These students are termed non-respondents and the aim of every survey is to reduce the number of such cases to a minimum.

In order to account for certain types of deviations from the frame population, it is necessary to adjust the weight of each PSU. The underlying assumption of this procedure was that certain non-respondents within a PSU were essentially similar to the respondents within either the PSU, the stratum, or the sample as a whole. The sampler, in deciding to adopt a weighting scheme, must pay scrupulous attention to the possibility that in adjusting estimates to account for the non-participating elements in a survey he/she is leaving the door open for bias to creep in. This problem can become acute if there is a large non-response and if the educational aspirations of the non-respondents are profoundly different from the respondents.

The decision about which components of non-response were to be weighted was influenced by the differentiation made in the Porter-Blishen

sample design. In the latter design, weightable non-respondents consisted of those students who were:

- 1) absent from school on the day of administration
- 2) in attendance at school but refused to participate in the study, i.e; did not complete the questionnaire
- 3) in attendance at school but refused permission by the principal or parents to complete the questionnaire

On the other hand, the non-weightable non-respondents were the students who had:

- 4) changed to another school or grade
- 5) dropped out of class
- 6) been erroneously included

Clearly components 4, 5, and 6, relate to frame-listing problems. Component 5 is particularly important for two reasons. Firstly, in the present survey it was quite probable that this group was substantially under-reported and secondly, its aspirations and attitudes may have been quite different from the majority group. In addition, weighting refusals should be viewed with reservation since evidently this subsample of students represented those in the population who did not wish the survey to speak for them. Perhaps it should be incumbent on surveyors to respect their wishes. In any case, since one goal of the present survey was to compare it with the Porter-Blishen study it was thought advisable to preserve the non-respondent - respondent distinctions created in the latter. In the following section the procedure for determining corrections to the frame weight is outlined.

Since two independent samples were selected, the subscripts 1 and 2 were used to identify the relevant symbols as belonging to sample #1 or sample #2. The sum of the two independent samples obtained from the frame population (108,586 students) was 3488 students. However, due to a sizeable decrease of the survey population, the sum of the two samples amounted to only 3059 students. The estimate of the survey population based on the school population lists was $96,582 \pm 2566$ students, where 2566 is equal to one standard deviation from the population total. The value was $11.0 \pm 2.3\%$ below the frame population. In other words, there is approximately a 70% chance that the actual survey population lay between 94,016 and 99,148 students. Note that the decrease in the estimated total population was approximately proportional to the decrease of the sample size. For the purpose of deriving the first two weight correction factors (R & S), it was decided to use the estimate of $N = 96,600$ from the sample*.

R: Correction Factor for Frame Selection Round-off Effects

This correction factor accounted for two effects. One was the result of selecting an additional PSU to the sample. The other effect was the result of rounding off the subsampling ratio to an integral fraction. Both effects contributed to a surplus of selections in sample #2. The correction factors balanced this inequity between the independent samples and improved the precision of variance estimation.

* Although in a strict sense two independent population estimates were required, the effect (in the present sample) of using the mean of the two estimates produces negligible differences in the correction factors.

Two schools, in which PSU's were selected, refused to participate in the survey, one in each of sample #1 and sample #2. In order to calculate the correction factors, an average value of the PSU's was substituted for the non-participating schools in each sample. Hence, the size of samples #1 and #2 was incremented by 29 students (to 1510 and 1607 students respectively).

The resulting correction factors for samples #1 and #2 were:

$$R_1 = 1.03 \quad ; \quad R_2 = .97$$

S: Correction Factor for Non-participating Schools

It was decided to "balance" the effect of the two schools that did participate by correcting the weight uniformly throughout each of the samples containing the missing PSU. The resulting correction factors for samples #1 and #2 were

$$S_1 = 1.02 \quad ; \quad S_2 = 1.02$$

T: Correction Factors for Non-Response - Phase I

Two possible methods correcting for non-response were considered. The first involved the duplication or elimination of respondent questionnaires in order to obtain a uniform response rate among the PSU's. The merit of this method was that only one weight factor would be required for sample estimation. The demerits were that a) large duplication rates resulted in a significant increase of the variance and b) occasionally respondent files had to be eliminated, an uncomfortable prospect for many samplers.

The second option involved the weighting of each PSU separately. The process of estimation was somewhat more involved but could easily be handled by computer data-processing techniques. The non-response correction factor was defined by the expression:

$$T_{ij} = \frac{n'_{ij}}{n_{ij}} \quad \begin{array}{l} j = 1, 2 \\ i = 1, 2, \dots, a_j \end{array}$$

where a_j = total number of
PSU's in sample j

where n_{ij} = the number of respondents in the i^{th}
PSU and j^{th} sample

and n'_{ij} = the number of selected students in the i^{th}
PSU and the j^{th} sample less those students
who were non-weightable non-respondents in
PSU i and sample j

The derivation of T_{ij} is detailed in Sub-appendix B.

It follows that the corrected weights for the i^{th} PSU in sample
#1 and #2 respectively were

$$W_{i1} = 62 \cdot R_1 \cdot S_1 \cdot T_{i1} \quad \text{and} \quad W_{i2} = 62 \cdot R_2 \cdot S_2 \cdot T_{i2}$$

The correction factors and the corrected weights by sample and by
school are included in Sub-appendix C.

U: Correction Factors for Non-Response - Phase II

Similar to the Phase I survey, a group of Phase I respondents failed
to respond to Phase II. The non-response in Phase II was treated in the
same way as the Phase I non-response. Each of the PSU weights with Phase I
corrections was again adjusted for the additional non-response in Phase II.
Over all the PSU's, the sum of the product of the Phase II corrected weights
and the number of Phase II respondents in each PSU of the sample were
approximately equal to the corresponding Phase I sum-total.

The non-response correction in Phase II was defined by the expression

$$U_{ij} = \frac{n_{ij}}{m_{ij}}$$

where $j = 1, 2$

$i = 1, 2, \dots, a_j$

m_{ij} = the number of Phase II respondent students
in the i^{th} PSU and the j^{th} sample

a_j = total number of PSU's in sample j

The Phase II corrected weights for the i^{th} PSU in sample 1 & 2 respectively, were

$$W_{i1} \text{ (II)} = 62 \cdot R_1 \cdot S_1 \cdot T_{i1} \cdot U_{i1} \quad \text{and}$$

$$W_{i2} \text{ (II)} = 62 \cdot R_2 \cdot S_2 \cdot T_{i2} \cdot U_{i2}$$

In the following sections it will be understood that $W_{i1,2} \text{ (II)}$ is to be used when computing the Phase II estimates. The Phase II corrected weights, by sample and by school, are included in Sub-appendix C.

Finally, a word of caution. Although the Phase II response rate was quite high -- 84% -- the total number of Phase II respondents represents only 73 per cent of the original number of Phase I selections. This fact implies that Phase II measurements are deficient relative to Phase I measurements in terms of their precision. Furthermore, the bias of non-response is potentially more harmful when Phase II results are used to generate a description of the changes effected in the original Grade 12 population than would the corresponding Phase I results. The same precaution applies to the use of Phase III data.

V, Z: Correction Factors for Non-Response - Phase III

As in Phases I and II, the effect of non-responding students in Phase III was corrected at the level of the original sampling unit. However in Phase III, two sets of non-response corrected weights were necessary for the PSU's. The first set of correction factors (V) was computed for the sub-set of the sample that responded in Phases I, II and III. The second set of correction factors (Z) was computed for the sub-set of the sample that responded in Phases I and III. The need for the two sets of corrected weights in Phase III resulted from the collection of 176 Phase III completions that did not respond in Phase II.

As in the case of the non-response correction factors for Phase I (T) and Phase II (U), the factor V was aggregated over the i^{th} PSU and the j^{th} sample in the following manner:

$$V_{ij} = \frac{m_{ij}}{l_{ij}}$$

where l_{ij} = the number of Phase III respondents in PSU i and sample j that were also respondents in Phase II.

The Phase III corrected weights for the i^{th} PSU in sample #1 and #2, respectively, that incorporate the correction factor V_{ij} were

$$W_{i1} (III) = 62 R_1 \cdot S_1 \cdot T_{i1} \cdot U_{i1} \cdot V_{i1} \quad \text{and}$$

$$W_{i2} (III) = 62 R_2 \cdot S_2 \cdot T_{i2} \cdot U_{i2} \cdot V_{i2}$$

The creation of a matched sample between Phases I, II and III would require the above form for the corrected weight.

The factor Z was aggregated over the i^{th} PSU and j^{th} sample in the following manner:

$$Z_{ij} = \frac{n_{ij}}{O_{ij}}$$

where O_{ij} = the number of Phase III respondents in PSU i and sample j

The Phase III corrected weights for the i^{th} PSU in sample 1 and 2 respectively, that incorporate the correction factor Z_{ij} were

$$W_{i1}^* \text{ (III)} = 62 \cdot R_1 \cdot S_1 \cdot T_{ij} \cdot Z_{i1} \text{ and}$$

$$W_{i2}^* \text{ (III)} = 62 \cdot R_2 \cdot S_2 \cdot T_{i2} \cdot Z_{i2}$$

Sample estimates based on the total number of respondents in Phase III or a matched sample between Phases I and III would require the above form for the corrected weight.

The Phase III corrected weights, listed by sample and by school, are included in Sub-appendix C.

TYPES OF ESTIMATES

Use of the weights in calculating sample estimates is illustrated in the following examples. The estimated aggregate of a variable y was obtained in the following manner. First, we compute the aggregate estimate y_1 and y_2 in each sample, 1 & 2. This calculation obtained

$$y_1 = \sum_{h=1}^H y_{h1} \quad \text{and} \quad y_2 = \sum_{h=1}^H y_{h2}$$

$$\text{where } y_{h1} = \sum_{i=1}^{a_{h1}} w_{hi1} y_{hi1} \quad \text{and} \quad y_{h2} = \sum_{i=1}^{a_{h2}} w_{hi2} y_{hi2}$$

and H = total number of strata

$a_{h1,2}$ = total number of PSU's in stratum h and sample 1 or 2.

$y_{hi1,2}$ = the aggregate of y in the i th PSU of stratum h in sample 1 or 2.

Note that when y is a "count" variable (i.e., a sample element can have the value 0 or 1), the above expressions are recast with the symbol n . When n pertains to the respondent (1) and non-respondent (0) students in the sample, $n_{1,2}$ refers to the total number of students in the population as estimated by sample #1 and #2 respectively, and $n_{h1,2}$ refers to the total number of students in stratum h as estimated by sample #1 and #2 respectively.

Secondly, we calculated the weighted, composite total estimate y , of the population total Y .

$$\hat{Y} = y = K_1 y_1 + K_2 y_2$$

$$\text{where } K_1 = \frac{n_1}{n_1 + n_2} \approx 1/2$$

$$\text{and } K_2 = \frac{n_2}{n_1 + n_2} \approx 1/2$$

In order to obtain the weighted, composite, mean estimate of the population mean \bar{Y} , we computed:

$$\hat{\bar{Y}} = \bar{y} = \frac{y}{n_0}$$

$$\text{where } n_0 = K_1 n_1 + K_2 n_2$$

= the composite count estimate
of the population

Note that if $y = x$ in the above expression where x is a "count" variable of the same type as n but refers to a different characteristic of the population, then $\bar{y} = p$, where p is an estimate of the population proportion \hat{P} of that characteristic. Hence:

$$\hat{P} = p = \frac{x}{n_0}$$

$$\text{where } x = K_1 x_1 + K_2 x_2$$

Since the number of respondents fluctuates in a haphazard fashion from PSU to PSU, the mean and proportion estimates should be termed more correctly as ratio estimates.

SAMPLING ERROR

In addition to obtaining the sample estimate of a population characteristic, it is important to know how closely the estimate may be to the actual value of the characteristic in the population. In other words, can an interval be defined around the sample point estimate, such that under repeated sampling from the same population, it can be expected that most of the times - e.g., 95 times out of 100 - such an interval would include the population value? In probability sampling, this interval is termed the "confidence interval", and its range can be determined by computing the variance of the point estimate. The square root of the variance defines the sampling error, a suitable multiple of which, in turn, is used to define the confidence interval.

The determination of confidence intervals assumes that the distribution of an estimator, from which the sample estimate is but one point, is known. For straightforward sample designs, such as a simple random sample, the variance estimates for different estimators are relatively easy to derive, and sample estimates are known to attain a normal-type distribution, upon increase of sample size. For sample designs in general, the shape of the distribution depends on the method of selection, the specific design of the sample, and the type of statistics being estimated. For stratified, clustered designs with several stages of selection (most commonly found in contemporary survey research), the expression for the variance can be formidable. For many estimators, the result is that there is no theoretical assurance of the normality of the distribution of their estimates. Hence, the problem of assigning confidence intervals to these estimates must be investigated empirically. Research into the area of variance estimation

for complex designs and the practical problem of the diversity and sheer number of statistics that need to be computed in the organization and analysis of survey data have resulted in alternate, empirical procedures based on the idea of replicated sampling. A procedure for the estimation of the variances has been incorporated into the design of the present study. A brief description concerning the estimation of the variance of estimated totals follows below.

Two equal samples of PSU's are selected independently in each stratum. Within each stratum an estimate of the sum-total of a characteristic is computed in each of the independent samples. Following this, the square of their difference is computed. The resulting value provides a rough estimate of the variance in that stratum. The estimates are aggregated over all the strata, and the resulting sum provides an estimate of the variance of the overall sample estimate for the particular characteristic. It should be emphasized that in the computations the sample elements have been assigned their respective weights corrected for non-response. Since in this procedure each stratum contributes one independent component of the total variation, the variance estimate has associated with it a number of degrees of freedom equal to the number of strata in the sample. If the total number of strata in the sample is greater than or of the order of ten, then the 95% confidence interval of a sum-total estimate y is constructed from the expression $y \pm 1.96 \sqrt{\text{var}(y)}$, where $\text{var}(y)$ is the estimated variance of y . If the number of strata is less than ten, then the determination of the confidence interval must take into account the effect of a restricted number of degrees of freedom of the variance estimate.

The expression for the 95% confidence interval for a sum-total estimate y would then be modified in the following manner:

$$y \pm t_{.025} \sqrt{\text{var}(y)}$$

where $t_{.025}$ is a function of the degrees of freedom.

The values of $t_{.025}$ for different degrees of freedom are tabulated in most elementary statistics texts. The essence of this functional relationship (as determined by the Student's distribution) is that $t_{.025}$ tends to increase more rapidly with a decrease in the number of degrees of freedom and can result in a large underestimate of the error bounds if $t_{.025} = 1.96$ is used as a substitute.

For estimating the variance of a mean, proportion, or ratio of a population characteristic, a similar algorithm is followed, although the variance estimating formulae are somewhat more complex. A mathematical description of the procedure that has been discussed is presented below.

The variance estimate of a sum-total or count of a characteristic is determined by the following expression:

$$\text{var}(y) = \sum_h \left[k_1 y_{h1} - k_2 y_{h2} \right]^2$$

The sampling error is defined as $\sqrt{\text{var}(y)}$.

For estimating the variance of a mean or proportion estimate (i.e., a ratio estimate), the following approximate expression is used:

$$\begin{aligned}\text{var } (r) &\approx \frac{1}{n_o^2} \left[\text{var } (y) + r^2 \text{var } (n_o) - 2 r \text{cov } (y, n_o) \right] \\ &= r^2 \left[\sum_h \left[\frac{K_1 y_{h1} - K_2 y_{h2}}{y} - \frac{K_1 n_{h1} - K_2 n_{h2}}{n_o} \right]^2 \right] \\ &= r^2 \left[\text{c of v } (r) \right]^2\end{aligned}$$

where $r = \bar{y}$ or p

$$\text{var } (n_o) = \sum_h \left[K_1 n_{h1} - K_2 n_{h2} \right]^2$$

= the variance of the count of the PSU's

$\text{cov } (y, n_o)$ = the co-variance of the sum-total y and count n_o

$$\text{c of v } (r) = \frac{\sqrt{\text{var } (r)}}{r} = \left[\sum_h \left[\frac{K_1 y_{h1} - K_2 y_{h2}}{y} - \frac{K_1 n_{h1} - K_2 n_{h2}}{n_o} \right]^2 \right]^{\frac{1}{2}}$$

= coefficient of variation of r

The variance estimate for a ratio is generally valid provided that the coefficient of variation of n_o is small:

$$\left[\frac{\sqrt{\text{var } (n_o)}}{n_o} < 0.2 \right]$$

This condition restricts fluctuations in the size of the PSU's to moderate levels. In the analysis of subclasses of the populations that cut across PSU boundaries, this condition can become a very important restriction for variance estimation.

A more detailed discussion on the derivation and the limitations of the approximate expression used for estimating the variance of ratio estimates is included in Chapter 6 of the book "Survey Sampling" by Leslie Kish.

SUB-APPENDIX A

PROJECT #141 - FINAL REPORT

STRATUM #1

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	LEFT SCHOOL	INELIGIBLE	BASE	# COMP	% COMP	# TEMP ABSENT	% T.A.	# REFUSAL	% REFUSAL	# OTHER	% OTHER
ETOBICOKE C.I.	2101	25	0	0	25	21	82	4	16	0	0	0	0
NORTH ALBION C.I.	2102	42	0	0	42	40	96	2	4	0	0	0	0
RICHVIEW C.I.	1103	29	0	0	29	21	77	6	20	0	0	2	3
SCHOOL OF EXPERIMENTAL EDUCATION	1104	26	0	0	26	13	50	0	0	0	0	13	50
SILVERTHORN C.I.	1105	31	0	0	31	31	100	0	0	0	0	0	0
THISTLETOWN C.I.	1106	21	1	0	20	16	80	4	20	0	0	0	0
WEST HUMBER C.I.	2107	34	4	1	29	27	93	2	7	0	0	0	0
BLOOR C.I.	2108	30	0	1	29	27	93	2	7	0	0	0	0
CENTRAL H.S. OF C.	2109	21	1	0	20	19	95	1	5	0	0	0	0
HUMBERSIDE C.I.	1110	31	2	0	29	28	96	0	0	0	0	1	4
MALVERN C.I.	1111	31	2	0	29	25	84	0	0	3	12	1	4

PROJECT #141 - FINAL REPORT

STRATUM #1

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	LEFT SCHOOL	INELIGIBLE	BASE	# COMP	% COMP	# TEMP ABSENT	% T.A.	# REFUSAL	% REFUSAL	# OTHER	% OTHER
OAKWOOD C.I.	1112	37	0	0	37	32	86	0	0	0	0	5	16
A.Y. JACKSON S.S.	2115	32	0	1	31	26	84	5	16	0	0	0	0
BATHURST HEIGHTS S.S.	2116	36	4	0	32	15	47	1	3	0	0	16	50
C.W. JEFFERYS S.S.	1117	36	0	0	36	36	100	0	0	0	0	0	0
EMERY C.I.	2118	35	2	0	33	28	85	5	15	0	0	0	0
NORTHVIEW HEIGHTS S.S.	1119	23	0	0	23	20	87	3	13	0	0	0	0
VICTORIA PARK S.S.	2120	54	1	0	53	18	34	10	19	0	0	25	47
CEDARBRAE C.I.	2121	27	0	0	27	24	88	1	4	1	4	1	4
DAVID AND MARY THOMPSON C.I.	1122	31	0	0	31	26	84	3	10	0	0	2	6
WINSTON CHURCHILL C.I.	2123	24	0	0	24	20	83	1	4	0	0	3	13
ST. GEORGE'S COLLEGE	1124	24	0	0	24	22	92	1	4	0	0	1	4

PROJECT #141 - FINAL REPORT

STRATUM #2

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	LEFT SCHOOL	INELIGIBLE	BASE	# COMP	% COMP	# TEMP ABSENT	% T.A.	# REFUSAL	% REFUSAL	# OTHER	% OTHER
CONFEDERATION S.S.	1225	12	0	0	12	5	42	1	8	0	0	6	50
MACDONALD CARTIER S.S.	2226	40	3	0	37	34	92	3	8	0	0	0	0
GARSON-FALCONBRIDGE S.S.	2227	26	0	0	26	23	88	3	12	0	0	0	0
LO-ELLEN PARK S.S.	1228	26	0	0	26	24	92	2	8	0	0	0	0
LOCKERY COMPO-SITE SCHOOL	1229	30	0	0	30	29	97	0	0	0	0	1	3
SHERIDAN TECHNICAL SCHOOL	2230	23	0	0	23	15	65	5	22	0	0	3	13
HON. W.C. KENNEDY C.I.	2231	22	0	0	22	22	100	0	0	0	0	0	0
JOHN L. FORSTER C.I.	1232	31	1	0	30	30	100	0	0	0	0	0	0
WINDSOP H.S. OF C.	2233	27	0	0	27	27	100	0	0	0	0	0	0
THE LONDON SOUTH S.S.	1234	15	0	0	15	13	86	1	7	0	0	1	7
SIR WILFRED LAURIER S.S.	1235	27	1	0	26	25	96	1	4	0	0	0	0

PROJECT #141 - FINAL REPORT

STRATUM #2

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	LEFT SCHOOL	INELIGIBLE	BASE	# COMP	% COMP	# TEMP ABSENT	% T.A.	# REFUSAL	% REFUSAL	# OTHER	% OTHER
GRAND RIVER C.I.	2236	30	0	1	29	21	72	5	18	0	0	3	10
SHERWOOD S.S.	2237	22	0	0	22	21	95	1	5	0	0	0	0
WESTMOUNT S.S.	1233	36	0	0	36	33	92	2	5	0	0	1	3
GLOUCESTER H.S.	2239	28	0	0	28	23	82	5	18	0	0	0	0
MÉRIVALE H.S.	1240	29	0	1	28	21	75	7	25	0	0	0	0
SIR ROB'T BORDEN	1241	31	1	1	29	21	72	8	28	0	0	0	0
SIR ROB'T BORDEN	2241	31	1	1	29	23	79	5	17	0	0	1	4
CANTEBURY H.S.	1242	30	2	0	28	28	100	0	0	0	0	0	0
ÉCOLE SECONDAIRE DE LASALLE	2243	30	0	0	30	29	97	1	3	0	0	0	0
GLEBE C.I.	2244	36	1	1	34	33	97	1	3	0	0	0	0
SIR WILFRED LAURIER H.S.	2245	26	1	1	24	24	100	0	0	0	0	0	0

STRATUM #2

- 45 -

PROJECT #141 - FINAL REPORT

STRATUM #3

SCHOOL NAME	SELECTED STUDENTS	LEFT SCHOOL	INELIGIBLE	BASE	# COMP	% COMP	# TEMP ABSENT	% T.A.	# REFUSAL	% REFUSAL	# OTHER	% OTHER
BRANTFORD C. & V.S.	28	1	0	27	24	89	3	11	0	0	0	0
BRANTFORD C. & V.S.	24	1	0	23	23	100	0	0	0	0	0	0
BRANTFORD S.S.	32	2	0	30	29	97	1	3	0	0	0	0
BRANTFORD DISTRICT S.S.	30	2	1	27	22	81	4	15	0	0	1	4
BRANTFORD H.S.	23	0	0	23	17	74	6	25	0	0	0	0
BRANTFORD DISTRICT S.S.	29	0	0	29	21	72	7	24	0	0	1	4
BRANTFORD S.S.	22	0	0	22	20	91	2	9	0	0	0	0
BRANTFORD DISTRICT S.S.	38	6	0	32	22	69	6	18	0	0	4	13
BRANTFORD FALLS C. & V.I.	30	1	1	28	28	100	0	0	0	0	0	0
BRANTFORD CENTRAL S.S.	28	0	0	28	26	94	1	3	0	0	1	3
BRANTFORD CENTRAL S.S.	28	0	0	28	21	75	5	18	0	0	2	7

PROJECT #141 - FINAL REPORT

STRATUM #3

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	LEFT SCHOOL	INELIGIBLE	BASE	# COMP	% COMP	# TEMP ABSENT	% T.A.	# REFUSAL	% REFUSAL	# OTHER	% OTHER
ALDERSHOT H.S.	2353	34	0	0	34	31	91	3	9	0	0	0	0
GLENFOREST S.S.	1352	44	0	0	44	44	100	0	0	0	0	0	0
LORNE PARK S.S.	1367	31	1	0	30	30	100	0	0	0	0	0	0
STREETSVILLE S.S.	2361	33	1	0	32	31	97	0	0	0	0	1	3
THOMAS L. KENNEDY S.S.	1362	32	0	0	32	29	91	3	9	0	0	0	0
WESTWOOD S.S.	2363	40	1	0	39	34	87	2	5	0	0	3	8
ORILLIA DISTRICT C. & V.I.	2364	27	2	0	25	21	84	0	0	0	0	4	16
DUNBARTON H.S.	2365	28	2	1	25	23	92	2	8	0	0	0	0
PORT PERRY H.S.	2366	25	4	1	20	17	85	0	0	0	0	3	15
BAYVIEW S.S.	1367	34	3	0	31	29	93	2	7	0	0	0	0
SUTTON DISTRICT H.S.	1368	30	0	0	30	29	97	1	3	0	0	0	0

STRATUM! #3

- 48 -

PROJECT #141 - FINAL REPORT

STRATUM #4

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	LEFT SCHOOL	INELIGIBLE	BASE	# COMP	% COMP	# TEMP ABSENT	% T.A.	# REFUSAL	% REFUSAL	# OTHER	% OTHER
BLIND RIVER DISTRICT H.S.	2471	17	0	0	17	10	59	5	29	0	0	2	12
CHAPLEAU H.S.	1472	21	0	0	21	21	100	0	0	0	0	0	0
IROQUOIS FALLS S.S.	1473	29	1	0	28	28	100	0	0	0	0	0	0
IROQUOIS FALLS S.	2473	30	0	0	30	25	83	0	0	0	0	5	17
ROLAND MICHENER S.S.	1474	26	0	0	26	23	88	3	12	0	0	0	0
ALGONQUIN HIGHLANDS S.S.	1475	28	0	0	28	22	79	6	21	0	0	0	0
ALGONQUIN HIGHLANDS S.S.	2475	27	0	0	27	25	93	2	7	0	0	0	0
WEST ELGIN S.S.	2476	32	1	0	31	31	100	0	0	0	0	0	0
THE DISTRICT S.S. (ESSEX COUNTY)	1477	30	3	0	27	27	100	0	0	0	0	0	0
THE DISTRICT S.S. (ESSEX COUNTY)	2477	30	1	0	29	28	97	0	0	1	3	0	0
CENTRAL HURON S.S.	1478	32	1	0	31	26	84	5	16	0	0	0	0

PROJECT #141 - FINAL REPORT

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	LEFT SCHOOL	INELIGIBLE	BASE	# COMP	% COMP	# TEMP ABSENT	% T.A.	# REFUSAL	% REFUSAL	# OTHER	% OTHER
STANLEY ELEMENTARY S.A.S.	2418	33	1	0	32	32	100	0	0	0	0	0	0
STANLEY ELEMENTARY S.S.	1440	23	0	0	23	18	78	5	22	0	0	0	0
WEST HILL S.S.	1451	27	1	0	26	26	100	0	0	0	0	0	0
WILSON PARK S.S.	2482	48	0	0	48	48	100	0	0	0	0	0	0
DEWITT HELLINGTON DISTRICT S.S.	1483	21	0	0	21	17	81	4	19	0	0	0	0
JOHN S. ROSS S.A.S.	1474	31	0	0	31	29	94	2	6	0	0	0	0
WINDYBELL W. & P. S.S.	1485	27	1	3	23	18	78	5	22	0	0	0	0
WINDYBELL DISTRICT S.S.	2188	26	3	1	22	22	100	0	0	0	0	0	0
WINDYBELL S.S.	1486	22	0	0	22	16	73	6	27	0	0	0	0
WINDYBELL COMBINED SCHOOL	2487	31	0	0	31	27	87	4	13	0	0	0	0
WINDYBELL W. & V.S.	2482	33	1	0	32	24	75	8	25	0	0	0	0

PROJECT #141 - FINAL REPORT

STRATUM #4

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	LEFT SCHOOL	INELIGIBLE	BASE	# COMP	% COMP	# TEMP ABSENT	% T.A.	# REFUSAL	% REFUSAL	# OTHER	% OTHER
PARKSIDE C.I.	1489	25	1	0	24	20	84	2	8	0	0	2	8
PARKSIDE C.I.	2489	26	1	0	25	20	80	1	4	0	0	4	16
SYDENHAM H.S.	2490	29	9	0	20	19	95	1	5	0	0	0	0
CENTRE HASTINGS S.S.	1491	26	0	1	25	19	76	6	24	0	0	0	0
NORTH HASTINGS S.S.	2492	47	0	0	47	33	70	5	11	0	0	9	19
NORTH GRENVILLE DISTRICT H.S.	1493	32	0	0	32	32	100	0	0	0	0	0	0
COBBOURG DISTRICT C.I.	1494	22	0	0	22	19	86	3	14	0	0	0	0
CRESTWOOD S.S.	1495	30	0	0	30	23	77	7	23	0	0	0	0
PRINCE EDWARD C.I.	1496	30	2	0	28	21	75	3	11	3	11	1	3
ECOLE SECONDAIRE DE PLANTAGENET	2497	41	4	0	37	37	100	0	0	0	0	0	0
CORNWALL C. & V.S.	2498	24	0	0	24	24	100	0	0	0	0	0	0

STRATUM #4

- 5: -

SUB - APPENDIX B

Derivation of Correction Factor for Non- Response

The estimated population total was 96,600. The frame weight corrected for round-off effects and non-responding schools was

$$W'_j = 62 \times R_j \cdot S_j \quad \text{where} \quad j = 1, 2 \text{ refers to the sample \#}$$

The total number of selections in each of samples #1 and #2 denoted by n''_j , where $j = 1, 2$ and satisfied the relation

$$W'_j \cdot n''_j = 96,600$$

In the i^{th} PSU and the j^{th} sample

let $n''_{ij} = \#$ of selections

$n'_{ij} = \#$ of selections excluding the ineligible and drop outs i.e. $\#$ of base selections

$n_{ij} = \#$ of respondents

Then the total $\#$ of students in the population represented by the i^{th} PSU and sample j is given by A_{ij}

$$\text{where } W'_j n'_{ij} = A_{ij}$$

The correction factor for non-response in the i^{th} PSU and sample j is defined by T_{ij} where

$$W'_j T_{ij} n_{ij} = W_{ij} n_{ij} = A_{ij} \quad \text{where} \quad W_{ij} = 62 R_j S_i T_{ij}$$

and therefore;

$$T = \frac{A_{ij}}{W'_j n_{ij}} = \frac{W'_j n'_{ij}}{W'_j n_{ij}} = \frac{n'_{ij}}{n_{ij}}$$

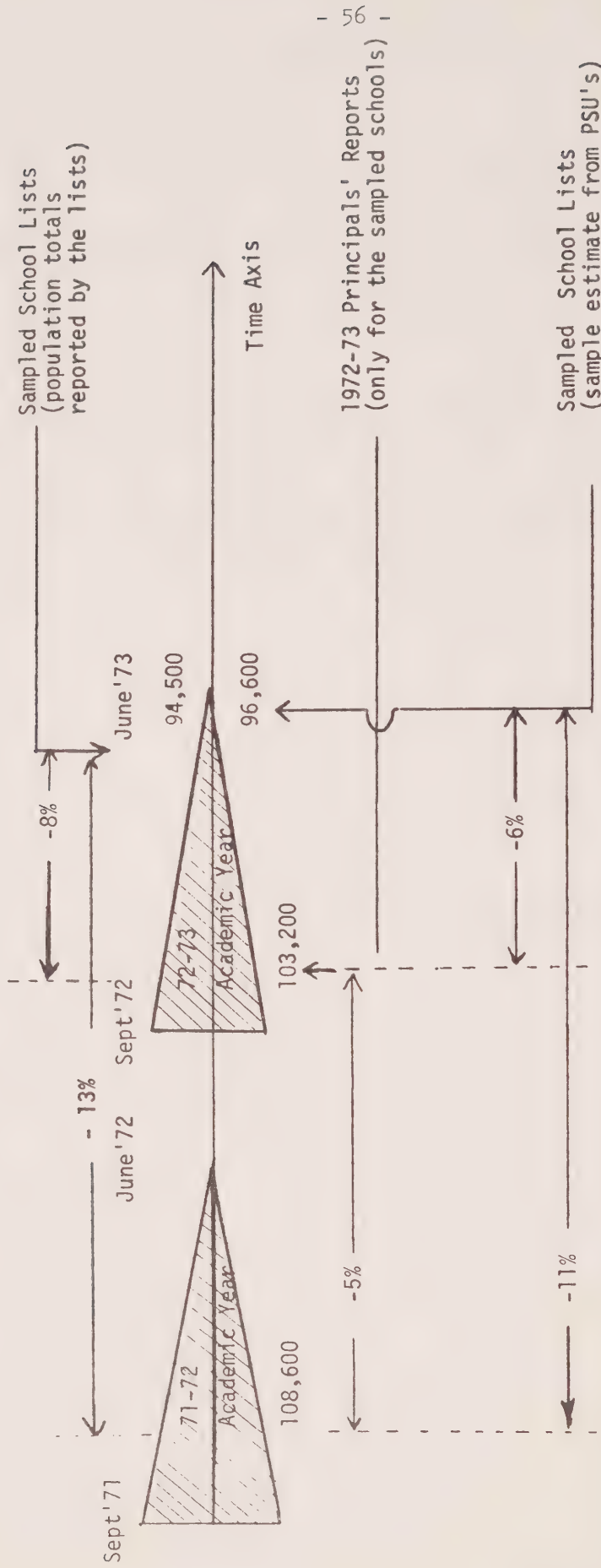
Note that

$$\sum_{i=1}^{a_j} A_{ij} = 96,600 - W'_j \sum_{i=1}^{a_j} (n''_{ij} - n'_{ij})$$

TIME-MONITOR PICTOGRAM

Time of Monitor

Source of Data



A Comparison of the Estimates of the Grade 12 Population Totals

Figure 1

SUB - APPENDIX C

Project 141 Weights: By Sample - By School

SAMPLE # 1

SAMPLE # 2

SCHOOL I.D. #	CORRECTION FACTORS (Phase I)			Wt. _{i1} (Phase I)	Wt. _{i1} (Phase II)	Wt. _{i1} (Phase III)	CORRECTION FACTORS (Phase I)			Wt. _{i2} (Phase I)	Wt. _{i2} (Phase II)	Wt. _{i2} (Phase III)	CORRECTION FACTORS (Phase II)			Wt. _{i2} (Phase I)	Wt. _{i2} (Phase II)	Wt. _{i2} (Phase III)
	R ₁	S ₁	T _{i1}				R ₂	S ₂	T _{i2}				R ₂	S ₂	T _{i2}			
01	1.03	1.02	1.38	90.1	94.7	111.3	.97	1.02	1.19	72.9	90.5	96.2				72.9	90.5	94.9
02									1.05	64.3	82.8	102.6				64.3	82.8	122.6
03			2.00	130	140.6	140.6												
04			1.00	65.2	69.7	74.9												
05			1.25	81.5	100.4	108.7												
06																		
07																		
08																		
09																		
10			1.03	67.5	70.3	79.0				65.7	68.3	77.2				65.7	68.3	80.2
11			1.16	75.6	82.4	82.4				65.7	65.7	68.1				65.7	65.7	68.1
12			1.16	75.4	100.4	100.4				64.4	87.7	87.7				64.4	87.7	111.1
15																		
16																		
17			1.00	65.2	71.1	83.8				73.0	75.8	86.1				73.0	75.8	89.5
18										131	246.1	246.1				131	246.1	461.4
19			1.15	75.0	75.0	79.01				72.1	74.9	88.1				72.1	74.9	91.3
20																		
21										180.2	191	191.1				180.2	191	202.4
22			1.19	77.8	81.0	84.4				68.9	71.7	86.9				68.9	71.7	90.5
23																		
24			1.09	71.1	78.2	82.4				73.4	86.5	91.9				73.4	86.5	102.02

Project 141 Weights: By Sample - By School

SAMPLE # 1

SAMPLE # 2

SCHOOL I.D. #	CORRECTION FACTORS (Phase I)			Wt _{i1} (Phase I)	Wt _{i1} (Phase II)	Wt _{i1} (Phase III)	CORRECTION FACTORS (Phase I)			Wt _{i2} (Phase I)	Wt _{i2} (Phase II)	Wt _{i1} (Phase II)	Wt _{i1} (Phase II)
	R ₁	S ₁	T _{i1}				R ₂	S ₂	T _{i2}				
25	1.03	1.02	2.40	157	196.2	245.3	.97	1.02					
26													
27													
28			1.08	70.6	80.6	84.2				66.6	133.3	141.8	283.4
29			1.03	67.5	67.5	67.5				69.2	83.8	93.7	107.1
30													
31													
32			1.00	65.2	74.9	80.2				93.8	127.5	127.5	147.1
33										61.2	64.2	70.9	70.7
34			1.15	75.2	88.7	97.6				61.2	66.1	78.6	81.0
35			1.04	67.8	70.5	73.5							
36													
37													
38			1.09	71.1	71.1	75.6				84.5	86.9	93.3	93.1
39										64.1	79.4		
40			1.33	86.9	86.9	91.3				74.5	114.1	145.9	
41			1.38	90.1	100.0	131.3							
42			1.00	65.2	72.9	81.6				77.3	88.7	98.6	81.6
43													
44										53.3	67.7	73.1	75.8
45										63.1	77.0	86.7	97.8
46			1.67	109	123.2	158.4				61.2	73.5	91.9	97.9
47			1.09	71.1	74.7	91.3							

Project 141 Weights: By Sample - By School

SAMPLE # 1

SAMPLE # 2

SCHOOL I.D. #	CORRECTION FACTORS (Phase I)			Wt. _{i,1} (Phase I)	Wt. _{i,1} (Phase II)	Wt. _{i,1} (Phase II)	Wt.* i,1	CORRECTION FACTORS (Phase I)			Wt. _{i,2} (Phase I)	Wt. _{i,2} (Phase II)	Wt. i,2 (Phase II)	Wt. i,2 (Phase II)
	R ₁	S ₁	T _{i,1}					R ₂	S ₂	T _{i,2}				
48	1.03	1.02	1.13	73.4	83.8	92.5	95.6	.97	1.02	1.03	63.3	73.3	76.4	75.9
49			1.00	65.2	78.8	78.8	82.4			1.23	75.1	91.7	103.2	118.4
50														
51			1.35	88.2	93.5	93.5	95.0			1.38	84.5	88.7	98.6	97.9
52			1.10	71.7	89.7	90.3	95.0			1.45	89.0	89.1	91.1	91.1
53			1.00	65.2	114.1	90.3	95.0			1.33	81.8	81.8	95.2	95.2
54			1.08	70.2	83.0	114.1	199.6			1.10	67.1	74.5	90.7	92.5
55						91.3	93.9							
56			1.00	65.2	69.7	84.2	74.9							
57			1.00	65.2	67.1	74.9	74.7							
58														
59			1.10	72.0	75.0	91.3	94.7			1.03	63.2	65.1	69.7	71.9
60														
61														
62														
63										1.15	70.2	77.2	82.4	87.5
64										1.19	72.9	90.5	104.8	103.4
65										1.09	66.5	73.1	85.2	88.5
66										1.18	72.0	81.2	81.2	86.3
67			1.07	69.7	114.5	118.8	147.9							
68			1.03	67.5	85.1	88.9	102.9							
69														
70			1.10	71.7	95.2	109.9	126.9			1.33	81.6	183.6	244.8	550.9

Project 141 Weights: By Sample - By School

SAMPLE # 1

SAMPLE # 2

SCHOOL I.D. #	CORRECTION FACTORS (Phase I)			Wt _{i1} (Phase I)	Wt _{i1} (Phase II)	Wt _{i1} (Phase III)	CORRECTION FACTORS (Phase I)			Wt _{i2} (Phase I)	Wt _{i2} (Phase II)	Wt _{i2} (Phase III)	Wt _{i1}
	R ₁	S ₁	T _{i1}				R ₂	S ₂	T _{i2}				
71	1.03	1.02	1.00	65.2	97.8	105.3	.97	1.02	1.70	104	148.7	173.5	185.9
72			1.00	65.2	79.4	82.9			1.20	73.4	96.8	114.9	134.3
73			1.13	73.3	112.7	120.6			1.08	66.1	78.6	86.9	89.3
74			1.27	83.0	122.0	140.8			1.00	61.2	65.5	65.5	67.7
75									1.04	63.4	68.5	71.3	71.1
76			1.00	65.2	76.2				1.00	61.2	65.5	65.5	65.5
77			1.19	77.8	84.0	87.5			1.00	61.2	71.7	75.4	80.0
78													
79													
80			1.28	83.3	136.6	150.3							
81			1.00	65.2	84.8	89.3							
82													
83			1.23	80.6	125.0	71.5			1.00	61.2	70.9	79.2	86.7
84			1.07	69.7	80.8	91.9			1.38	84.2	103.6	103.6	110.5
85			1.28	83.3	115.0	121.8			1.14	70.3	118.8	126.7	213.7
86									1.33	81.6	93.1	97.8	101.6
87									1.25	76.5	153.1		
88			1.20	78.3	223.8	497.2			1.05	64.4	76.8	170.1	340.2
89													
90													
91			1.32	85.8	108.9	116.6							
92									1.42	87.2	151.9	160.4	208.9
93			1.00	65.2	74.3	86.5							

Project 141 Weights: By Sample - By School

SAMPLE # 1

SAMPLE # 2

SCHOOL I.D. #	CORRECTION FACTORS (Phase I)			Wt. _{i1} (Phase I)	Wt. _{i1} [*] (Phase II)	Wt. _{i1} (Phase III)	CORRECTION FACTORS (Phase I)			Wt. _{i2} (Phase I)	Wt. _{i2} (Phase II)	Wt. _{i1} (Phase III)	Wt. _{i1} (Phase III)
	R ₁	S ₁	T _{i1}				R ₂	S ₂	T _{i2}				
94	1.03	1.02	1.16	75.5	80.0	84.8	.97	1.02					
95			1.30	85.1	108.9	107.7							
96			1.33	86.9	101.8	101.8							
97													
98													
99			1.04	67.5	82.4	84.9				61.2	64.8	74.1	73.5
										61.2	66.7	69.9	76.1

STRATUM # 1

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	# COMP. 1	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT ₂	# MOVED	# OTHER ₃	% REFUSAL OTHER
Etobicoke C. I.	2101	21	17	81	2	10	0	2	0	0	10
North Albion C. I.	2102	40	31	78	6	15	0	2	1	0	8
Richview C. I.	1103	21	20	95	0	0	0	1	0	0	5
School of Experimental Education	1104	13	12	92	0	0	0	1	0	0	8 1 1
Silverthorn C. I.	1105	31	29	94	1	3	0	0	1	0	3
Thistletown C. I.	1106	16	13	81	2	13	1	0	0	0	6
West Humber C. I.	2107	27	26	96	1	4	0	0	0	0	0
Bloor C. I.	2108	27	27	100	0	0	0	0	0	0	0
Central H. S. of C.	2109	19	14	73	3	16	0	2	0	0	11
Humberside C. I.	1110	28	27	96	1	4	0	0	0	0	0

Project #141 - Phase II - Final Report

STRATUM # 1

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	# COMP. 1	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT ₂	# MOVED	# OTHER ₃	% REFUSAL OTHER
Malvern C. I.	1111	25	23	92	1	4	0	0	1	0	4
Oakwood C. I.	1112	32	24	75	4	13	0	4	0	0	13
A. Y. Jackson S. S.	2115	26	25	96	1	4	0	0	0	0	0
Bathurst Heights S. S.	2116	15	8	53	7	47	0	0	0	0	103
C. W. Jeffreys S.S.	1117	36	33	92	3	8	0	0	0	0	0
Emery C. I.	2118	28	27	96	1	4	0	0	0	0	0
Northview Heights S. S.	1119	20	20	100	0	0	0	0	0	0	0
Victoria Park S. S.	2120	18	17	94	1	6	0	0	0	0	0
Cedarbrae C. I.	2121	24	23	96	0	0	0	1	0	0	4
David and Mary Thompson C. I.	1122	26	25	96	1	4	0	0	0	0	0

STRATUM # 1

[illegible]

Project #141 - Phase II - Final Report

STRATUM # 2

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	# COMP. 1	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT ₂	# MOVED	# OTHER ₃	% REFUSAL OTHER
Confederation S. S.	1225	5	4	80	1	20	0	0	0	0	0
MacDonald-Cartier S. S.	2226	34	17	50	17	50	0	0	0	0	0
Carson-Falconbridge S. S.	2227	23	19	83	3	13	0	1	0	0	4
Lo-Ellen Park S. S.	1228	24	21	88	1	4	0	1	1	0	85
Lockerby Composite School	1229	29	29	100	0	0	0	0	0	0	0
Sheridan Technical School	2230	15	11	74	2	13	1	0	1	0	13
Hon. W. C. Kennedy C. I.	2231	22	21	95	0	0	0	1	0	0	5
John L. Forster C. I.	1232	30	26	87	3	10	0	1	0	0	3
Windsor H. S. of C.	2233	27	25	92	1	4	1	0	0	0	4
The London South S. S.	1234	13	11	85	2	15	0	0	0	0	0

Project #141 - Phase II - Final Report

STRATUM # 2

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	# COMP. 1	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT ₂	# MOVED	# OTHER ₃	% REFUSAL OTHER
Sir Wilfred Laurier S. S.	1235	25	24	96	1	4	0	0	0	0	0
Grand River C. I.	2236	21	20	95	0	0	0	1	0	0	5
Sherwood S. S.	2237	21	17	81	2	10	0	0	2	0	10
Westmount S. S.	1238	33	33	100	0	0	0	0	0	0	1
Gloucester H. S.	2239	23	15	65	8	35	0	0	0	0	0
Merivale H. S.	1240	21	21	100	0	0	0	0	0	0	0
Sir Robert Borden	1241	21	19	90	1	5	0	1	0	0	5
Sir Robert Borden	2241	23	20	88	1	4	0	2	0	0	8
Canterbury H. S.	1242	28	25	89	2	7	0	1	0	0	4
Ecole Secondaire De Lasalle	2243	29	27	93	2	7	0	0	0	0	0

[illegible]

Project #141 - Phase II - Final Report

STRATUM # 3

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	# COMP. 1	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT 2	# MOVED	# OTHER 3	% REFUSAL OTHER
Bawating C. & V. S.	1348	24	21	88	1	4	0	1	1	0	8
Korah C. & V. S.	1349	23	19	83	1	4	0	3	0	0	13
Widdifield S. S.	2350	29	25	86	2	7	0	2	2	2	7
Beamsville District S. S.	2351	22	18	82	3	14	0	1	0	0	1 5 8 1
Grantham H. S.	1352	17	16	94	1	6	0	0	0	0	0
Grimsby District S. S.	2353	21	20	95	0	0	0	1	0	0	5
Lakeport S. S.	1354	20	16	80	1	5	0	2	1	0	15
Niagara District S. S.	2355	22	22	100	0	0	0	0	0	0	0
Niagara Falls C. & V. I.	1356	28	16	57	12	43	0	0	0	0	0
Welland Centennial S. A.	1357	26	22	85	1	4	0	0	3	0	12

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	# COMP. 1	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT ₂	# MOVED	# OTHER ₃	% REFUSAL OTHER
Weiland Centennial S. S.	2357	21	21	100	0	0	0	0	0	0	0
Aldershot H. S.	2358	31	28	90	2	6	0	1	0	0	3
Glenforest S. S.	1359	44	41	93	3	7	0	0	0	0	0
Lorne Park S. S.	1360	30	29	97	0	0	0	1	0	0	1 3 5 1
Streetsville S. S.	2361	31	30	97	1	3	0	0	0	0	0
Thomas L. Kennedy S. S.	1362	29	28	96	1	4	0	0	0	0	0
West Wood S. S.	2363	34	31	91	1	3	0	0	2	0	6
Orillia District C. & V. I.	2364	21	17	81	1	5	0	2	1	0	14
Dunbarton H. S.	2365	23	21	91	2	9	0	0	0	0	0
Port Perry H. S.	2366	17	15	89	0	0	0	2	0	0	11

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	# COMP. 1	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT 2	# MOVED	# OTHER 3	% REFUSAL OTHER
Bayview S. S.	1367	29	18	62	4	14	0	4	2	1	24
Sutton District H. S.	1368	29	23	79	4	14	0	2	0	0	7
Notre Dame College	2369	27	12	44	15	56	0	0	0	0	0
Pickering College	1370	20	15	75	2	10	1	0	2	0	15
STRATUM #3 TOTALS		618	524	85	58	9	1	22	12	1	6

Project #141 - Phase II - Final Report

STRATUM # 4

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	# COMP., 1	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT ₂	# MOVED	# OTHER ₃	% REFUSAL OTHER
Blind River District H. S.	2471	10	7	70	1	10	0	0	2	0	20
Chapleau H. S.	1472	21	14	66	6	29	0	1	0	0	5
Iroquois Falls S. S.	1473	28	23	82	1	4	0	2	2	0	14
Iroquois Falls S. S.	2473	25	19	76	4	16	0	2	0	0	8 71
Roland Michener S. S.	1474	23	15	66	4	17	0	2	2	0	17
Almaguin Highland S. S.	1475	22	15	68	3	14	0	4	0	0	18
Almaguin Highland S. S.	2475	25	21	84	2	8	0	1	1	0	8
West Elgin S. S.	2476	31	29	94	2	6	0	0	0	0	0
The District S. S. (Essex County)	1477	27	23	85	1	4	0	2	1	0	11
The District S. S. (Essex County)	2477	28	26	93	0	0	0	1	1	0	7

Project #141 - Phase II - Final Report

STRATUM # 4

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	# COMP. 1	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT 2	# MOVED	# OTHER 3	% REFUSAL-OTHER
Central Huron S.S.	1478	26	24	92	2	8	0	0	0	0	0
Lambton Central C. & V. I.	2479	32	30	94	1	3	0	1	0	0	3
John Diefenbaker S. S.	1480	18	11	61	4	22	0	2	0	1	17
West Hill S. S.	1481	26	20	77	1	4	0	3	2	0	19 72
Huron Park S. S.	2482	48	41	86	2	4	0	5	0	0	10
Centre Wellington District S.S.	1483	17	11	64	2	12	0	3	1	0	24
John F. Ross C. & V. I.	1484	29	25	86	4	14	0	0	0	0	0
Norwell District S. S.	1485	22	19	86	2	9	0	1	0	0	5
Norwell District S. S.	2485	18	13	72	3	17	1	0	1	0	11
Cayuga S. S.	2486	16	13	81	1	6	0	0	2	0	13

Project #141 - Phase II - Final Report

STRATUM # 4

SCHOOL NAME	SCHOOL NUMBER	SELECTED STUDENTS	# COMP. 1	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT 2	# MOVED	# OTHER 3	% REFUSAL-OTHER
Simcoe Composite School	2487	27	16	53	11	47	0	0	0	0	0
Ancaster H & V. S.	2488	24	21	88	2	8	0	1	0	0	4
Parkside C. I.	1489	20	10	50	10	50	0	0	0	0	0
Parkside C. I.	2489	20	7	35	12	60	0	1	0	0	5
Sydenham H. S.	2490	19	16	84	2	11	0	0	1	0	5
Centre Hastings S. S.	1491	19	15	73	2	11	0	2	0	0	11
North Hastings S. S.	2492	33	19	58	8	24	0	4	2	0	18
North Grenville District C.I.	1493	19	18	95	1	5	0	0	0	0	0
Cobourg District C. I.	1494	19	18	95	1	5	0	0	0	0	0
Crestwood S. S.	1495	23	18	78	3	13	0	2	0	0	9

STRATUM # 4

[illegible]

Project #141 - Phase II - Final Report

STRATUM	# OF SCHOOLS	SELECTED STUDENTS	# COMP. ₁	% COMP.	# NO PHONE NUMBER	% NO PHONE NUMBER	# REFUSAL	# TEMP. ABSENT ₂	# MOVED	# OTHER ₃	% REFUSAL-OTHER
1	22	535	478	89	37	7	1	15	4	0	4
2	23	564	489	88	55	9	2	11	6	1	4
3	23	619	524	85	58	9	1	22	12	1	6
4	29	838	665	80	103	12	1	45	22	2	8 1/5
TOTALS	97	2555	2156	84%	253	10%	5	93	44	4	6%

1. 105 of the total number of completions were by proxy.
2. No contact after four calls.
3. Ineligible, ill, or deceased.

SUB-APPENDIX E.

PROJECT #141 - PHASE III - FINAL REPORT

STRATUM #1

SCHOOL NAME	SCHOOL NUMBER	(1) SELECTED STUDENTS	(2) NO INFORM- ATION	(3) TOTAL COMPLETION	(4) % (3)	(5) NO RESPONSE TO MAIL OUT	(6) NO RESPONSE TO 4 CALLS AND MAIL OUT	(7) % (5) & (6)	(8) (DEAD ADDRESS)	(9) ILL DECEASED INELIGIBLE	(10) REFUSED	(11) % (8) (9) (10)
Etobicoke C.I.	2101	21	0	20	95.2	0	1	4.8	0	0	0	0.0
North Albion C.I.	2102	40	0	27	67.5	7	3	25.0	3	0	0	7.5
Richview C.I.	1103	21	0	18	85.7	1	1	9.5	1	0	0	4.8
School of Experimental Education	1104	13	0	12	92.3	0	0	0.0	1	0	0	7.7
Silverthorn C.I.	1105	31	0	28	90.3	1	2	9.7	0	0	0	0.0
Thistletown C.I.	1106	16	1	12	75.0	2	1	18.8	0	0	0	0.0
West Humber C.I.	2107	27	0	23	85.1	3	1	14.8	0	0	0	0.0
Bloor C.I.	2108	27	0	26	96.3	1	0	3.7	0	0	0	0.0
Central H. S. of C.	2109	19	0	15	78.9	4	0	21.1	0	0	0	0.0
Humberside C.I.	1110	28	0	24	85.7	1	3	14.3	0	0	0	0.0
Malvern C.I.	1111	25	0	23	92.0	1	1	8.0	0	0	0	0.0

PROJECT #141 - PHASE III - FINAL REPORT

STRATUM # 1

SCHOOL NAME	SCHOOL NUMBER	(1) SELECTED STUDENTS	(2) NO INFORM- ATION	(3) TOTAL COMPLETION	(4) % (3)	(5) NO RESPONSE TO MAIL OUT	(6) NO RESPONSE TO 4 CALLS AND MAIL OUT	(7) % (5) & (6)	(8) (DEAD ADDRESS)	(9) ILL DECEASED INELIGIBLE	(10) REFUSED	(11) % (8) (9) (10)
Oakwood C.I.	1112	32	0	29	90.6	2	0	6.3	1	0	0	3.1
A. Y. Jackson S.S.	2115	26	0	22	84.6	2	1	11.5	1	0	0	3.8
Bathurst Heights S.S.	2116	15	6	8	53.3	0	1	6.7	0	0	0	0.0
C. W. Jeffreys S.S.	1117	36	1	29	80.5	3	2	13.9	1	0	0	2.8
Emery C.I.	2118	28	0	23	82.1	2	1	10.7	2	0	-	7.1
Northview Heights S.S.	1119	20	0	19	95.0	1	0	5.0	0	0	0	0.0
Victoria Park S.S.	2120	18	0	17	94.4	1	0	5.6	0	0	0	0.0
Cedarbrae C.I.	2121	24	0	19	79.2	3	2	20.8	0	0	0	0.0
David and Mary Thompson C.I.	1122	26	0	25	96.2	0	1	3.9	0	0	0	0.0
Winston Churchill C.I.	2123	20	1	17	85.0	1	0	5.0	1	0	0	5.0
St. George's College	1124	22	0	21	95.5	0	1	4.5	0	0	0	0.0

STRATUM # 1

- 78 -

PROJECT #141 - PHASE III - FINAL REPORT

STRATUM # 2

SCHOOL NAME	SCHOOL NUMBER	(1) SELECTED STUDENTS	(2) NO INFORM- ATION	(3) TOTAL COMPLETION	(4) % (3)	(5) NO RESPONSE TO MAIL OUT	(6) NO RESPONSE TO 4 CALLS AND MAIL OUT	(7) % (5) & (6)	(8) (DEAD ADDRESS)	(9) ILL DECEASED INELIGIBLE	(10) REFUSED	(11) % (8)(9)(10)
Confederation S.S.	1225	5	1	4	80.0	0	0	0.0	0	0	0	0.0
MacDonald-Cartier S.S.	2226	34	17	16	47.1	1	0	2.9	0	0	0	0.0
Garson-Falconbridge S.S.	2227	23	0	18	78.3	1	1	8.7	2	0	1	13.0
Lo-Ellen Park S.S.	1228	24	0	23	95.8	1	0	4.2	0	0	0	0.0
Lockerby Composite School	1229	29	0	29	100.0	0	0	0.0	0	0	0	0.0
Sheridan Technical School	2230	15	0	13	86.7	2	0	13.3	0	0	0	0.0
Hon. W. C. Kennedy C.I.	2231	22	0	20	90.9	1	0	4.5	1	0	0	4.5
John L. Forster C.I.	1232	30	0	28	93.3	2	0	6.7	0	0	0	0.0
Windsor H. S. of C.	2233	27	0	22	81.5	2	1	11.1	2	0	0	7.4
The London South S.S.	1234	13	2	10	76.9	0	1	7.7	0	0	0	0.0
Sir Wilfred Laurier S.S.	1235	25	0	24	96.0	0	0	0.0	0	0	1	4.0

PROJECT #141 - PHASE III - FINAL REPORT

SCHOOL NAME	SCHOOL NUMBER	(1) SELECTED STUDENTS	(2) NO INFORM- ATION	(3) TOTAL COMPLETION	(4) % (3)	(5) NO RESPONSE TO MAIL OUT	(6) NO RESPONSE TO 4 CALLS AND MAIL OUT	(7) % (5) & (6)	(8) (DEAD ADDRESS)	(9) ILL DECEASED INELIGIBLE	(10) REFUSED	(11) % (8) (9) (10)
Grand River C.I.	2236	21	0	20	95.2	0	1	4.8	0	0	0	0.0
Sherwood S. S.	2237	21	0	15	71.4	3	0	14.3	2	0	1	14.3
Westmount S. S.	1238	33	0	31	93.9	1	1	6.0	0	0	0	0.0
Gloucester H. S.	2239	23	1	18	78.3	3	0	13.0	1	0	0	4.3
Merivale H. S.	1240	21	0	20	95.2	1	0	4.7	0	0	0	0.0
Sir Robert Borden	1241	21	0	16	76.2	2	0	9.5	1	0	2	14.3
Sir Robert Borden	2241	23	0	20	86.9	0	0	0.0	3	0	0	13.0
Canterbury H.S.	1242	28	0	25	89.3	0	2	7.1	1	0	0	3.6
Ecole Secondaire de Lasalle	2243	29	0	26	89.6	2	0	6.8	0	0	1	3.4
Glebe C.I.	2244	33	1	26	78.9	4	0	12.1	1	0	1	6.1
Sir Wilfred Laurier H.S.	2245	24	0	18	75.0	2	0	8.0	3	1	0	17.0

STRATUM # 2

[illegible]

PROJECT #141 - PHASE III - FINAL REPORT

STRATUM # 3

SCHOOL NAME	SCHOOL NUMBER	(1) SELECTED STUDENTS	(2) NO INFORM- ATION	(3) TOTAL COMPLETION	(4) % (3)	(5) NO RESPONSE TO MAIL OUT	(6) NO RESPONSE TO 4 CALLS AND MAIL OUT	(7) % (5) & (6)	(8) (DEAD ADDRESS)	(9) ILL DECEASED INELIGIBLE	(10) REFUSED	(11) (8) (9) (10)
Bawating C. & V. S	1348	24	1	21	87.5	0	1	4.2	1	0	0	4.2
Korah C. & V. S.	1349	23	0	22	95.7	0	1	4.3	0	0	0	0.0
Widdifield S. S.	2350	29	0	28	96.6	0	0	0.0	0	0	1	3.5
Beamsville District S. S.	2351	22	0	17	77.3	3	1	18.2	1	0	0	4.5
Grantham H. S.	1352	17	0	17	100.0	0	0	0.0	0	0	0	0.0
Grimsby District S. S.	2353	21	0	19	90.5	1	1	9.5	0	0	0	0.0
Lakeport S. S.	1354	20	0	19	90.5	1	0	9.5	0	0	0	0.0
Niagara District S. S.	2355	22	0	22	100.0	0	0	0.0	0	0	0	0.0
Niagara Falls C. & V. I.	1356	28	12	16	57.1	0	0	0.0	0	0	0	0.0
Welland Centennial S. A.	1357	26	1	23	88.5	1	0	3.9	1	0	0	3.9
Welland Centennial S. S.	2357	21	0	18	85.7	1	0	4.8	2	0	0	9.5

PROJECT #141 - PHASE III - FINAL REPORT

STRATUM # 3

SCHOOL NAME	SCHOOL NUMBER	(1) SELECTED STUDENTS	(2) NO INFORM- ATION	(3) TOTAL COMPLETION	(4) % (3)	(5) NO RESPONSE TO MAIL OUT	(6) NO RESPONSE TO 4 CALLS AND MAIL OUT	(7) % (5) & (6)	(8) (DEAD ADDRESS)	(9) ILL DECEASED INELIGIBLE	(10) REFUSED	(11) % (8) (9) (10)
Aldershot H. S.	2358	31	0	25	80.6	3	0	9.7	1	0	2	9.7
Glenforest S. S.	1359	44	0	36	81.8	5	0	11.4	3	0	0	6.8
Lorne Park S. S.	1360	30	0	27	90.0	1	2	10.0	0	0	0	0.0
Streetsville S. S.	2361	31	0	28	90.3	0	2	6.5	1	0	0	3.2
Thomas L. Kennedy S. S.	1362	29	1	23	79.3	5	0	17.2	0	0	0	0.0
West Wood S. S.	2363	34	0	30	88.2	2	1	8.8	1	0	0	2.9
Orillia District C. & V. I.	2364	21	0	20	95.2	1	0	4.8	0	0	0	0.0
Dunbarton H. S.	2365	23	1	19	82.6	1	2	13.0	0	0	0	0.0
Port Perry H. S.	2366	17	0	16	94.1	0	1	5.9	0	0	0	0.0
Bayview S. S.	1367	29	0	22	75.8	5	0	17.2	1	1	0	6.9
Sutton District H. S.	1368	29	1	24	82.8	2	1	10.3	1	0	0	3.5

STRATUM # 3

[illegible]

PROJECT #141 - PHASE III - FINAL REPORT

STRATUM # 4

SCHOOL NAME	SCHOOL NUMBER	(1) SELECTED STUDENTS	(2) NO INFORM- ATION	(3) TOTAL COMPLETION	(4) % (3)	(5) NO RESPONSE TO MAIL OUT	(6) NO RESPONSE TO 4 CALLS AND MAIL OUT	(7) % (5) & (6)	(8) (DEAD ADDRESS)	(9) ILL DECEASED INELIGIBLE	(10) REFUSED	(11) % (8) (9) (10)
Blind River District H. S.	2471	10	0	8	80.0	2	0	20.0	0	0	0	0.0
Chapleau H. S.	1472	21	5	14	66.7	1	0	4.8	0	0	1	4.8
Iroquois Falls S. S.	1473	28	0	*26	92.8	1	1	7.1	0	0	0	0.0
Iroquois Falls S. S.	2473	25	4	18	72.0	2	1	12.0	0	0	0	0.0
Roland Michener S. S.	1474	23	0	21	91.3	0	0	0.0	2	0	0	8.7
Almaguin Highland S. S.	1475	22	0	18	81.8	2	2	18.2	0	0	0	0.0
Almaguin Highland S. S.	2475	25	0	22	88.0	0	2	8.0	0	0	1	4
West Elgin S. S.	2476	31	0	30	96.7	1	0	3.2	0	0	0	0.0
The District S. S. (Essex County)	1477	27	0	25	92.6	1	0	3.7	0	0	1	3.7
The District S. S. (Essex County)	2477	28	0	27	96.0	0	0	0.0	0	0	1	3.6
Central Huron S. S.	1478	26	0	25	96.2	0	1	3.8	0	0	0	0.0

PROJECT #141 - PHASE III - FINAL REPORT

STRATUM # 4

SCHOOL NAME	SCHOOL NUMBER	(1) SELECTED STUDENTS	(2) NO INFORM- ATION	(3) TOTAL COMPLETION	(4) % (3)	(5) NO RESPONSE TO MAIL OUT	(6) NO RESPONSE TO 4 CALLS AND MAIL OUT	(7) % (5) & (6)	(8) (DEAD ADDRESS)	(9) ILL DECEASED INELIGIBLE	(10) REFUSED	(11) % (8) (9) (10)
Lambton Central C. & V. I.	2479	32	0	32	100.00	0	0	0.0	0	0	0	0.0
John Diefenbaker S. S.	1480	18	2	15	83.3	1	0	5.6	0	0	0	0.0
West Hill S. S.	1481	26	0	25	96.2	1	0	3.8	0	0	0	0.0
Huron Park S. S.	2482	48	1	43	89.6	3	0	6.3	1	0	0	2.1
Centre Wellington District S. S.	1483	17	0	17	100.0	0	0	0.0	0	0	0	0.0
John F. Ross C. & V. I.	1484	29	0	23	79.3	4	0	13.8	2	0	0	6.9
Norwell District S. S.	1485	18	0	17	94.4	0	0	0.0	1	0	0	5.6
Norwell District S. S.	2485	22	1	18	81.8	2	1	13.6	0	0	0	0.0*
Cayuga S. S.	2486	16	0	15	93.8	0	0	0.0	0	1	0	6.3
Simcoe Composite School	2487	27	11	15	55.6	1	0	3.7	0	0	0	0.0
Ancaster H & V. S.	2488	24	0	22	91.7	2	0	8.3	0	0	0	0.0

PROJECT #141 - PHASE III - FINAL REPORT

STRATUM # 4

SCHOOL NAME	SCHOOL NUMBER	(1) SELECTED STUDENTS	(2) NO INFORM- ATION	(3) TOTAL COMPLETION	(4) % (3)	(5) NO RESPONSE TO MAIL OUT	(6) NO RESPONSE TO 4 CALLS AND MAIL OUT	(7) % (5) & (6)	(8) (DEAD ADDRESS)	(9) ILL DECEASED INELIGIBLE	(10) REFUSED	(11) % (8) (9) (10)
Parkside C. I.	1489	20	11	9	45.0	0	0	0.0	0	0	0	0.0
Parkside C. I.	2489	20	10	9	45.0	1	0	5.0	0	0	0	0.0
Sydenham H. S.	2490	19	1	18	94.7	0	0	0.0	0	0	0	0.0
Centre Hastings S. S.	1491	19	2	16	84.2	1	0	5.3	0	0	0	0.0
North Hastings S. S.	2492	33	0	24	72.7	5	1	18.2	3	0	0	9.1
North Grenville District C.I.	1493	32	0	26	81.3	3	1	12.5	2	0	0	6.3
Cobourg District C. I.	1494	19	0	17	89.5	1	1	10.5	0	0	0	0.0
Crestwood S. S.	1495	23	0	22	95.7	0	0	0.0	0	0	1	4.4
Prince Edward C. I.	1496	21	0	19	90.5	2	0	9.5	0	0	0	0.0
Ecole Secondaire de Plantagenet	2497	37	2	33	89.2	0	2	5.4	0	0	0	0.0
Cornwall C. & V. I.	2498	24	2	21	87.5	0	1	4.2	0	0	0	0.0

STRATUM # 4

[illegible]

- 89 -

[illegible]

YORK UNIVERSITY
SURVEY RESEARCH CENTRE

APPENDIX II - QUESTIONNAIRE
PROJECT 141

October, 1974

Phase 3

FOLLOW-UP SURVEY OF FORMER ONTARIO GRADE 12 STUDENTS

The Survey Research Centre is involved in research designed to assist in the development of educational programmes. Hopefully, these programmes will better enable young people to make intelligent choices for their future. Your co-operation has assisted us in the past; we have a few more questions to ask you at this time.

First of all, we would like some background information...

*1. Are you male or female?

Male.....1

Female.....2

*2. What is your marital status?

Married.....1

Single.....2

Separated.....3

Divorced.....4

Widowed.....5

SECTION A

3. How well would you say your high school education has prepared you for what you are doing now?

Very well.....1

Moderately well.....2

Not very well.....3

Not well at all.....4

4. Among your own circle of friends in high school, about how many did the following...

	<u>All or</u> <u>Nearly All</u>	<u>About</u> <u>Half</u>	<u>Only Few</u> <u>or None</u>
... a) went to a community college....	1.....	2.....	3.....
... b) went to university.....	1.....	2.....	3.....
... c) went to work.....	1.....	2.....	3.....

5. What is the highest level of formal education your parents expect you to attain?

High school graduation or less.....1

Complete Community College training.....2

Bachelor's degree.....3

Master's degree.....4

Phd degree.....5

Other(specify).....6

Does not apply to me.....9

SECTION B

6. How many full-time jobs have you had since leaving high school?

_____ jobs

- * 7. Are you now working either full-time or part-time?

Yes, full-time.....1

Yes, part-time.....2

No, not working.....3

Skip to Section C Page 4

8. What prompted you to go to work?

9. How many hours per week are you working?

____ hrs.

*10a. What type of work are you doing?
(e.g. labourer, secretary, service station attendant etc.)

*10b. In what sort of place?
(e.g. construction, government office, gas station etc.)

11. Did you have trouble finding your present job?

Yes.....1

No.....2

12. Overall, how satisfied are you with your present job?

Very satisfied.....1

Satisfied.....2

Indifferent.....3

Dissatisfied.....4

Very dissatisfied.....5

SECTION C

*13. Are you presently attending a university or community college?

Yes.....1

No.....2

Go to Section D, page ?

*14. Are you studying either full-time or part-time at a university or a community college?

Yes, full-time university.....1

Yes, part-time university.....2

Yes, full-time community college.....3

Yes, part-time community college.....4

*15. At which Institution are you presently enrolled?

<u>Community College</u>		<u>University</u>
Algonquin.....01	Niagara.....15	Brock.....23
Cambrian.....02	Northern.....16	Carleton.....24
Canadore.....03	St. Clair.....17	Guelph.....25
Centennial.....04	St. Lawrence.....18	Lakehead.....26
Conestoga.....05	Sault Ste. Marie.....19	Laurentian.....27
Confederation.....06	Seneca.....20	McMaster.....28
Durham.....07	Sheridan.....21	Ottawa.....29
Fanshawe.....08	Sir Sanford Fleming..22	Queen's.....30
George Brown.....09		Ryerson.....31
Georgian.....10		Toronto.....32
Humber.....11		Trent.....33
Lambton.....12		Waterloo.....34
Loyalist.....13		Western.....35
Mohawk.....14		Wilfrid Laurier..36
		Windsor.....37
		York.....38

16. What is or will be your major area or programme of study?

17. In how many credit courses are you enrolled?

_____ courses

18. Through what major source are you financing your first
(or second) year at school? (CIRCLE ONE SOURCE ONLY)

- Parents.....01
- Government loans and grants...02
- Government loans.....03
- Scholarships and/or bursaries.04
- Savings from work.....05
- Earnings from part-time work
while studying.....06
- Loans from parents, relatives
and/or friends.....07
- Personal savings.....08
- Inheritances.....09
- Other. (specify)10
- Don't know.....98

19a. What sort of job do you expect to obtain after completing
your education? (e.g. school teacher, nurse, veterinarian)

19b. In what sort of place do you expect to work?
(e.g. high school, hospital, your own practice)

20. What are the most important reasons you have for attending a community college or a university?

1. _____

2. _____

21a. The major pressure facing me in trying to complete my studies this term is.....

21b. To what extent are you bothered by this pressure?

A lot.....1

Some.....2

Not very much.....3

Not applicable.....9

THANK YOU VERY MUCH FOR YOUR CO-OPERATION

(Section D does not apply to you)

SECTION D

*22. What (else) are you doing at the present time?

Apprenticeship.....01
Grade 13.....02
Housewife.....03
Man-power training.....04
Trade school.....05
Travelling.....06
Unemployed.....07
Other (specify).....08
None of these.....09

23. What is the most important reason for deciding on your present activity?

24. Do you plan to attend a community college or a university in the future? When?

1 year from now (1975-76).....1
2 years from now (1976-77)....2
3 years from now (1977-78)....3
4 years from now (1978-79)....4
5 years from now (1979-80)....5
Never.....6

THANK YOU VERY MUCH FOR YOUR CO-OPERATION

APPENDIX III

Decision Rules for Classification

CLASS 1 - Working Full Time.

Class 1 is produced by the satisfaction of any one of 3 possible decision rules.

Rule 1: Var 159 (P3, Q7) = 1 AND Var 80 (P3, Q22) = 1 or 3 or 9.

These are people who answered working full-time and in addition said they were apprentices, housewives, or none of these. Presumably this includes working apprentices, working housewives, and plain workers (working full-time AND none of these). Excluded categories are working full-time AND (grade 13 OR manpower training OR school OR travelling OR unemployed OR other OR inappropriate).

Exclusions were on the basis of inconsistent answers (e.g., working AND unemployed) or confusing answers (e.g., what is a working AND Grade 13, working AND school, working AND other?) or on the basis of impossible to classify answers (working AND inapplicable). Note that cases excluded by this rule may have been included by another rule (and probably were).

Rule 2: Var 159 (P3, Q7) = 2 AND Var. 162 (recorded) (P3, Q9) = 3.

This rule represents people who answered part-time to Var 159 but also said they were working 35-40 hours/week. I judged this to be an operational definition of full-time working, notwithstanding the self-perception of the respondent.

Rule 3: Var 159 (P3, Q7) = 1 AND Var 167 (P3, Q13) = 2.

This rule represents people who answered full time working and in addition said they were not at university or community college. This seemed like a useful definition (N = 865 in this cell).

In other words, the definition of working full time was multi-dimensional in nature representing different conceptions and criteria (hopefully reasonable) of what a full time worker is. Probably most people would have been included by Rule 3.

CLASS 2 - Attending university

Rule: Var 168 (P3, Q14) = 1.

Attending university was defined by answering yes to full-time university attendance.

CLASS 3 - Attending community college of applied arts and technology.

Rule: Var 168 (P3, Q7) = 3 AND Var 171 (P3, Q17) = 2 to 7 inclusive.

This class includes people who answered yes to full-time community college attendance and in addition were taking a minimum of 2 credit courses. This excluded people who said they were taking no courses (presumably impossible) and people who said they were taking 1 course (presumably, but arbitrarily, considered unlikely). Also excluded were people who said they were part-time since it was unclear whether they should properly be considered community college students or in the workforce.

CLASS 5 - Other activities

Rule: Var 159 (P3, Q7) = 3 AND Var 167 (P3, Q13) = 2.

This class includes people who were not working and also not attending university or community college. The reasoning here was to prevent including people in the other classes of working, university, or community college. By doing this one hopefully minimizes the overlap of classes and maximizes their discriminability. Thus this is an exclusion class which operationally defines an alternative activities person as one who doesn't fall into any of the other three categories.

CLASS 4 - Part-time studies.

Rule: Var 168 (P3, Q14) = 2 or 4

This rule represents people who answer yes, part-time university or yes, part-time community college.

